THE
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CENTURY
*AND AFTER*

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## *TRAFFIC*

My reason for writing this article is the introduction of the Road Traffic Bill by the Minister of Transport.[1] This Bill is published in the form of a Blue-book, and the prefatory memorandum by the Minister states that it is circulated for discussion with a view to obtaining the greatest possible measure of general agreement and that the Government are in no way committed to the Bill

Plainly, there is a doubt in the mind of the Minister as to whether it meets the case, and the trouble is that at a transitional stage in the development of traffic it is not clear what that case is.

I am also very much impressed with the great importance of the solution of the traffic problem; everyone is intimately concerned, and efficient transport is the lifestream of the modern community. In this article I have endeavoured to cover a larg

[1] It was announced while this article was in the press that the Ministry of Transport is to be abolished, but this does not affect this article, as his duties will of course be carried on by another Government department.

subject in a few pages, and I hope that others may be moved to amplify and correct my statements, for it is only by discussion that a way can be found to a right policy.

Before proceeding to any criticism of the draft Bill I shall set down a short statement of the facts as they appear to me, together with some speculations of what the future may hold in store.

The state of affairs to-day is obviously transitional, and ten years hence conditions will be very different from those that now exist. Presently, however, a stable state will be reached in which the number and classes of transport vehicles of all kinds will vary but little from year to year, and this state will persist until the next great upheaval brought about by an invention of the same overwhelming importance as that of the steam engine or the petrol engine. We are now experiencing in a different form what happened when the steam engine was invented and the railways spread over the country.

At the present time there are well-known traffic problems prominently before our eyes. There are the difficulties peculiar to cities and the difficulties which come about in the country outside them.

The solution of the present troubles of big cities continually exercises the wit of man. London in particular, both by reason of its size and its unsymmetrical plan, presents the problem in an acute form. As time goes on and as buildings become higher, so that more and more people are concentrated on one piece of ground in the daytime, as Fordism spreads and more and more people own (or hire-purchase) their own cars, the problem will become more difficult to solve.

In these big cities there are two sides to the matter. Most of us are well aware of the congestion aspect and the difficulty of getting about quickly. Congestion is bad in London; it is not so troublesome in other cities, and, as yet, is hardly felt outside them. We who are left alive can also appreciate the safety side of the problem by recollecting occasions when we have been in imminent danger of destruction. Indeed, the spectacle of some of our London streets is terrifying and is too tremendous for my pen, but I can imagine that the student of Milton preparing to cross at Piccadilly Circus may recollect the difficulties of Satan.

> Into this wild Abyss the warie fiend
> Stood on the brink of Hell, and look'd a while,
> Pondering his Voyage; for no narrow frith
> He had to cross. Nor was his eare less peal'd
> With noises loud and ruinous, (to compare
> Great things with small) then when Bellona storms,
> With all her battering Engines bent to rase
> Som capital City; . . .

When we leave the big cities and reach the smaller towns and the country the traffic problem is repeated in another form. Once more there are two sides. On the one hand there is again the element of danger. The country roads have become racing tracks, and it is ludicrous to notice a road and a railway side by side. The railway is carefully fenced and perhaps double-fenced, so that access to the track is impossible. The road, equally dangerous, is open to anyone, and children from cottages may play on it.

Running about on the country roads are vehicles of all kinds which carry much of the traffic on which the railways depend for their living, so that the future of these essential undertakings is desperate.

I have mentioned the dangers of the road as entering into the traffic problem wherever it occurs—in cities or out of them. These figures, for the year ending December 31, 1926, give the number of road accidents in England and Wales—

| | |
|---|---|
| Fatal .. .. .. .. .. | 4,307 |
| Non-fatal .. .. .. .. | 121,783 |
| Total .. .. .. | 126,090 |

For the same period in the Metropolitan Police District alone the figures are

| | |
|---|---|
| Fatal .. .. .. .. .. | 1,003 |
| Non-fatal .. .. .. .. | 46,036 |
| Total .. .. .. | 47,039 |

It is roughly true, therefore, to say that now *every day* three people are killed in the streets of London, or that twelve people are killed on the roads of England and Wales. Fatal accidents have increased by 55 per cent. and non-fatal by 125 per cent. in the last six years.

Now there are three main causes for this tremendous casualty list—

(*a*) Error or negligence on the part of the driver;

(*b*) Mechanical defects in the vehicles or unsatisfactory road conditions;

(*c*) Error or negligence of persons other than drivers.

And in the Report of the Road Fund, June 1925–26, it is stated that the proportion of accidents falling under each of these headings remains remarkably steady from year to year. The percentages for 1923–24, 1924–25, and 1925–26 are respectively, under heading (*a*), 55, 56 and 49·5; under heading (*b*), 30, 28 and 31; and under heading (*c*), 14, 12 and 14.

From whatever causes arising, these figures are impressive

and comparable to the casualties in big wars, and we must work and hope for their diminution, as they represent a dreadful waste. It seems absurd that roads should claim more casualties in a week than railways do in a year. If the casualties can be reduced, well and good; if not, they must continue, for it is sure that motor traffic has come to stay. A friend of mine recently remarked 'that the motor car had added greatly to the pleasure of life and the certainty of death,' and we shall not be deterred from this pleasure by the fear of the consequences to ourselves or to others.

I believe that there is hope that road traffic may become less dangerous as a generation grows up who are more accustomed to it and will drive cars more reasonably. I have noticed, also, that the young schoolboy of to-day shows a greater respect for the dangers of a motor omnibus than do his elders. He is not so much inclined to try to board or leave it when in motion, and he recognises it for what it is, while his elders' *ideal* of an omnibus which they cannot forget is their early recollection of a horse omnibus, and this is borne out by the Report on Street Accidents in Greater London, March 1927.

Now, to deal with the second element of the problem in big cities, namely, congestion. This is a formidable business in London, and we only seem to be able to offer palliatives. Suggestions of overhead roads seem to me impracticable talk, and the recommendation of more tubes is met by very great engineering difficulties, for subterranean London is becoming as crowded as the surface.

If the road traffic is to grow and grow, as at any rate for a time it will, it seems to me that certain vehicles must be banished from the streets. What vehicles can go with the minimum of inconvenience? The omnibuses and commercial vehicles are a necessity, the taxis (though not the crawling taxis) are almost equally necessary; but are not most of the private cars quite unnecessary in the congested areas of big cities? I am told that in New York, where, by reason of the topography of the city, the problem is even more acute than in London, people do not for the most part attempt to bring private cars into the central area.

It may be that the future will see the abolition or a great reduction of private cars in London, either because the owner finds it inconvenient or because regulations forbid him to park. Moreover, though private and public vehicles are increasing every day, it does not seem to me reasonable to suppose that we are to become a race of centaurs. The use of cars will reach a limit. Certainly the greater the number of cars the less is the pleasure of private ownership and use, and certainly, also, we cannot see at present clearly the value of a car or its place in the scheme of

things. The car is as yet over-valued because the pleasures of movement, of driving and of ownership are novelties, and will remain novelties, for a long time, but in the end they will stale.

It is interesting to recall the time when the pedal bicycle with pneumatic tyres was introduced. This machine was a great novelty in its time and the fastest thing on the road; a bicycling craze came about and bicyclists swarmed. Now the bicycle takes its due place and is even more largely used, but hardly at all for pleasure. Something of the same sort will happen in the case of the private car, which in the end will be driven for its utility only, and when the first glamour has gone economy will have its way.

Next to turn to the second element of the traffic problem outside the purely city problem—the competition of railways and road transport. The railways to-day cannot pay their way. Railway interests complain loudly that they are being bled by rates and in one way or another in order to subsidise their competitors on the roads, and that this competition is unfair. Trustees who have bought gilt-edged railway stocks watch the turn of fortune's wheel, which threatens dividends to extinction. In the early days of the nineteenth century a system of canals covered the country. After this came the railway age, and the railways competed with the canals, which fell into disuse, much to the public loss. We should remember this and try to find an answer to the practical question, Can we afford to do without the services of the railways? The country does not want to lose a useful service again as it lost the canals. Is it not true to say of the railways that they, and they alone, can cope with the heavy and long-distance traffic, and that they are essential both for civil and military purposes, and that without the railways the roads, however used, are quite inadequate? If this is so, something must be done to reconcile the interests and opportunities of railways with road transport undertakings.

May I pause here to discuss the rights of private cars and of omnibuses in the use of the roads? The right of a subject to the use of the King's highway is to *pass along it*, and that is the only right. Clearly this does not allow a private car to 'park.' This is important, because much of the congestion in London is caused by private cars which in between their journeys have to 'park' on the roads. Prevention of parking will diminish the number of cars to be found on the streets (Statutory Rules and Orders, 1925, No. 905, is an instance of legislation in this direction).

Again, the right to pass along the King's highway was never intended to include the use which omnibuses demand from it. In the first place, omnibuses require stopping places, fixed stations which they do not pass, and a man does not exercise a right to pass along by arranging to stop at prearranged points.

There is, however, a less legal and more common-sense argument. Roads to-day are motor tracks, costly to construct and maintain; omnibuses make use of these roads for the purpose of deriving a profit. There is surely no more sense in allowing them to do this under their simple right to pass along the highway than there would be to allow tramways to come on to the road without special sanction. There is no difference of substance between the case of a tramway and an omnibus: one has a fixed rail, the other has not; each obstructs the highway, each uses it for purposes of gain.

It may be that in the future it will be necessary to legislate for omnibuses as was done for railways—that is to say, give the operating undertakings exclusive rights over large areas on conditions which compel them to give adequate service over *all* the needed routes, whether all these routes pay or not. This would of course mean monopoly and banishing competition, and doubtless taxation would be imposed proportionate to the monopoly value. Maybe the matter in the end will be carried a step further and railways and road services will be fused into big combines, so that there can be no question of unfair competition between them. Free and unrestricted competition only leads to cheaper and better travel over *certain* routes and to no other element of good service, and we must not let any blind worship of the rights of the individual cause disorganisation of the country's transport for his sake.

Let me now proceed to the draft Bill. The prefatory memorandum announces that a large part of the Bill is devoted to consolidation and re-enactment, and it will be seen from what follows that the Bill is disappointing from this point of view. It does consolidate up to a point, but further consolidation is needed. My remarks will be directed to the need for further consolidation and to a point of the greatest importance, the manner in which the Bill deals with competing transport services.

Clauses 1 and 2 of the Bill divide motor vehicles into classes, and power is given to the Minister to make regulations regarding the use and construction of each class. Now it seems unfortunate that these regulations should not be collected, revised, and published with the Bill. The present regulations, which (by clause 27) are to continue in force, are scattered in many documents. They could be collected and revised and a fresh start could be made; an Act the gist of which is contained in a miscellaneous mass of already existing regulations published at various times in the past, and which contemplates (without showing) revision, is not a consolidation Act.

The omnipotent Minister's power of making regulations is

comfortably called 'elasticity' in the memorandum, and I often wonder if it would not be wise to limit this kind of elasticity by providing that new regulations can only be made at stated times and intervals of time. If government in these matters must be bureaucratic—and probably this is the only way—there is no reason why the Minister should not approach his task in an orderly manner.

There are grave objections to allowing too much 'elasticity.' In the first place, it is not necessary; in the second place, it is a hardship on manufacturers, who have to make plans ahead; in the third place, it makes the knowledge of the law inaccessible, since the Minister issues regulations at his own pleasure, and anyone who has experience of the publishing methods of H.M. Stationery Office will know that it is no easy matter to be sure that the latest regulation on a subject has been obtained.

There is of course in the Bill the usual protection that the Minister's regulations shall be laid before both Houses of Parliament, but this familiar provision is well known to be of very small value, and the Minister of Transport admitted this in the House of Commons on April 1—an excellent date!

Clause 3 of the Bill deals with the speed limit, and with this matter, to which the Press has given some attention, I do not propose to deal. I shall leave it to wiser brains than mine to decide if it is better to have a modest limit of speed which nobody obeys, or no speed limit at all or one fixed so high that driving within it is often dangerous. This first portion of the Bill also contains a new provision of great importance under which drivers must be up to the necessary physical standard of fitness.

Part II. of the Bill deals with lights on vehicles; and this is a much-needed piece of consolidation, the law at present being contained in ten different statutes and orders. Here again power is given to make regulations, and it would be helpful to know what these are to be.

Part III. of the Bill deals with the law relating to highways. This calls for no comment here, except that by clause 44 the Minister is given power to restrict the use of roads where they are unsuitable for the use of vehicles of any class, or where they cannot be used without danger to the public. A clause of this character is contained in the existing Roads Act.

It is Part IV. of the Bill to which I shall chiefly devote my attention. It deals with the regulation of public service vehicles outside London. At present these vehicles are regulated under an Act with the cryptic title of the Towns Police Clauses Act, 1847. This Act is an adoptive Act, and many areas have not yet adopted it! There are thus many areas not at present controlled, and also some vehicles which need control are not

included in its provisions. On the top of this Act there are an immense number of local laws and regulations which have no uniformity at all.

Again, as the Departmental Committee on the Licensing and Regulation of Public Service Vehicles found in their first Interim Report, the possible licensing authorities for these vehicles which now exist are 60 county councils, 79 county borough councils, 246 non-county borough councils, 721 urban district councils, and 643 rural district councils. The committee contemplated these astronomical figures and came to the conclusion that the position was 'unsatisfactory.' This brief statement is enough to show that at present in these matters 'Chaos Umpire sits.'

Now the Bill offers a new code abolishing the Towns Police Clauses Act and the local legislation, and reducing the number of licensing authorities and making their activities uniform. This is all to the good, but there is in clause 53 of this fifth part of the Bill a provision which needs very careful consideration. It may mean very much or it may mean little, and it is because of this clause that I began this article by a number of general observations.

The clause provides that a vehicle must not be used without a road service licence, and to this licence there may be attached such conditions as the licensing authority, subject to any regulations made by the Minister, may think fit for —

> 53 (3). . . . securing the establishment and maintenance of a suitable service of stage carriages . . . and for securing that the route to be followed shall be suitable and that the vehicles to be used shall in design construction or equipment be suitable to the route and . . . for securing
>
> (*a*) That the fares shall not be unreasonably high;
>
> (*b*) That where desirable in the public interest the fares shall be so fixed as to prevent wasteful competition with alternative forms of transport (if any) along the route or any part thereof or in proximity thereto.

This is followed by a proviso that failure to comply with any such conditions shall not be an offence if done with the consent of the licensing authority for the area in which the offence is alleged to have been committed.

Later on in the Bill is found a provision that a person 'aggrieved' with the refusal to issue a road service licence or the conditions put upon it may in the 'prescribed' manner appeal to the Minister. The only indication of this 'prescribed manner' is the definition clause of the Bill, which says that 'prescribed' means prescribed by the Minister.

When clause 53 is read a previous provision of clause 44 must not be forgotten, for it gives the Minister power, subject to a public inquiry, to restrict the use of a road by any form of traffic which is unsuitable to the road or dangerous on it.

When clause 53 is pondered over its meaning is far from clear. It is a puzzle to know why the words ' (if any) ' are put in ; but other puzzles are to know what is to be covered by the ' public interest,' and what is meant by ' a suitable service of stage carriages,' and by ' wasteful competition,' and by ' in proximity thereto.'

From one point of view competition is always wasteful ; from another it never is. Is the ' condition ' likely to be ' thou shalt not charge less than so much ' or ' thou shalt charge so much and no more ' ? Before Parliament passes this clause it should ask itself a number of questions and be sure that the words used express the meaning intended.

Is the section designed to—

Preserve the interests of municipal and other tramways (as the Interim Report of the Ministry of Transport Departmental Committee on the Licensing and Regulation of Public Service Vehicles, 1925, openly suggests).

Preserve the interests of large omnibus combines.

Preserve the interests of independent omnibuses.

Preserve the interests of the railways.

Help to organise the traffic of the county as a whole.

Help to organise *local* traffic alone.

Help to economise road space.

Help to economise the expenditure of the county on transport ?

I need not discuss the draft section any further ; it is apparent when it is read that it leaves the matter very much at large.

The explanatory memorandum to the Bill refers to the clause as giving ' reasonable control of routes and services.' This is too modest a statement of the possible meaning of these draft provisions. What the clause is legally to mean will be laid down on the appeals of those who feel ' aggrieved ' sufficiently to appeal in the prescribed manner, which, as I have said, is the manner chosen by the Minister. This will mean that the Minister may allow an impartial hearing and decision of the matter or may with absolute power decide it. If he allows a hearing, the ' court ' and the ' judge ' will be of his own choosing. I am sure that he will act in a fair-minded way, and do not for a moment suggest the contrary, but I do not think that it can be right that Parliament should give its Minister a vague clause under which he is to take the responsibility of shaping the manner in which the organisation of the country's transport is to take place. Parliament can do two things : it can either make up its mind clearly what it intends by this clause and clause 44, and give a direction which is plain and specific, or it can leave the clauses in general terms and set

up a strong and independent tribunal which can develop from a general direction the lines on which it is to act.

The danger of vague legislation left in the hands of bureaucratic authorities has been well shown under the London Traffic Act of 1924. This Act deals with the same problem as do clauses 44 and 53 of the present Bill and applies to the London traffic area. The Act is full of contradictions and tautology, and even the Attorney-General has admitted in court that it is 'open to criticism.' The result is that when the Minister endeavours to bring his powers under it into play and makes orders, appeals are brought to the High Court to show that he has acted *ultra vires*, and thus much money is wasted and no control of traffic is exercised. No less than two of these cases were decided in the week in which I write—*May* v. *Beattie* on April 4 and *R.* v. *Minister of Transport, Ex parte H.C. Motor Works, Limited*, on April 5.

Some guidance on the present state of affairs may be gained by looking back fifty years to a stage in the development of the railways. In 1877 Lord Beaconsfield, speaking in the House of Lords, said that the management of railways 'is perhaps our greatest domestic problem'—words which might be applied to roads and railways at the present time. In that year a Royal Commission appointed 'to inquire into the causes of accidents on railways and into the possibility of removing such causes by further legislation' published its Report, and this Report and an article upon it by the late Sir John Fowler, which appeared in the June number of this Review of that year, give much food for thought. A total of 1307 fatal accidents in a year was the magnitude of the railway accident problem to which the Commission had to address itself; but the Commission seems to have strayed outside its terms of reference, and also discusses the problem of interlocking means of transport and the kind of tribunal which should deal with these matters. The Railway and Canal Traffic Act had been passed in 1854, and had proved a failure because the tribunal appointed was the Court of Common Pleas. It was strong and independent, but, as Lord Chief Justice Campbell pointed out in the House of Lords in opposing the measure, it was equipped with no special knowledge. While later, commenting on another court, in Sir John Fowler's article, is to be found this passage: 'The great danger of delegating large legislative powers to an untried court is unfortunately illustrated in the working of the newly appointed tribunal of the Railway Commission appointed by the Railways Act of 1873.' It was not until the Railway and Canal Traffic Act of 1888 that the present Railway and Canal Commission came into being.

I can summarise my criticism of these clauses 53 and 44 in few words. Do they or do they not intend that a fundamental

reorganisation of traffic should take place? Is something of this sort to take place, or are we to go on haphazard as at present? [2]

It may be very expensive to allow events to take their course. Organisation has ultimately to take place, and if interests are allowed to grow up it is very difficult to take them away without compensation. This is plain from many Government reports—for example, 'Omnibus Competition with Tramways, 1926.' I myself am very much in favour of strengthening the draft clauses 44 and 53 and endeavouring to interlock all traffic, roads and railways, to the best advantage, but I think the half-hearted approach made by the draft clauses and the absence of a good tribunal to control the matter will inevitably lead to trouble. Interlocking all transport is the main problem of the hour.

One matter remains to be dealt with. This last part of the Bill, which gives a code for public service vehicles, omits to deal with London.

Now, though the police of London are very efficient, it cannot be said that there is not the same need for a traffic code for London as for the country outside. The need for a consolidated code for London is generally admitted, and the London Traffic Act of 1924 even contemplates that it will be done. Briefly the present state of affairs is that London cabs and stage carriages are governed by this formidable list of enactments:

1 & 2 Will. 4, c. 22 (London Hackney Carriages Act, 1831).
1 & 2 Will. 4, c. 120 (Stage Carriages Act, 1832).
3 & 4 Will. 4, c. 48 (London Hackney Carriages Act, 1833).
5 & 6 Vict. c. 79 (Railway Passenger Duty Act, 1842).
6 & 7 Vict. c. 86 (London Hackney Carriages Act, 1843).
13 & 14 Vict. c. 7 (London Hackney Carriage Act, 1850).
16 & 17 Vict. c. 33 (London Hackney Carriage Act, 1853).
16 & 17 Vict. c. 127 (London Hackney Carriage (No. 2) Act, 1853).
59 & 60 Vict. c. 27 (London Cab Act, 1896).
7 Edw. 7, c. 55 (London Cab and Stage Carriage Act, 1907).
14 & 15 Geo. 5, c. 34 (London Traffic Act, 1924).

Some of these laws apply to the City of London, some to the County of London, some to the Metropolitan Police District, and one to the London Traffic Area.

One might, in innocence of heart, imagine that these areas were all equivalent, but this is far from being the case. The City of London stops on the western side at Temple Bar, the County of London at a point between Barnes and Chiswick; the Metro-

[2] That thorough and complete organisation of all interests—railway and road—is desirable is the opinion of labour unions. See *The Times* of March 23, 1927.

politan Police District does not come to an end till West Drayton is passed; and the London Traffic Area includes 'the parishes of Amersham, Chalfont St. Giles, Chalfont St. Peter, Chenies and Penn, Coles Hill hamlet and Seer Green Chapelry.' Walking last Sunday in the quiet lanes of this beautiful district, twenty-two miles from London and amidst cherry orchards and beech woods, I marvelled at the long view of the bureaucratic mind which from its lofty room in Whitehall saw the connexion between these empty lanes and the traffic of London; but this is by the way.

The London taxi driver and omnibus driver and the police now work under a code which is unwieldy. It contains a certain amount of historical information, and 1 & 2 Will. 4, c. 120, still directs the guard of a stage carriage, whilst the horses are harnessed and whilst any passenger is in the carriage, not to discharge any firearms except for the necessary defence of the carriage. This is interesting, but the bold Turpin is long ago dead and horses do not draw omnibuses any more. On the other hand, we look in vain in these Acts for a provision which is adequate to prevent taxis from crawling or to control standing passengers in omnibuses.

Parliament was as early as 1843 oppressed with a need for the consolidation of the London Traffic Acts. This was at a time when the confusion and multitude of Acts was as nothing compared with what it is to-day. Animated, not by motives of mercy to the drivers of the period, but by the hope that their better instruction would make them more obedient to the law, it directed (by the London Hackney Carriages Act of 1843) that the Commissioner of Police should present each driver and conductor with an abstract of these laws. The abstract exists. Though only an abstract, it contains 50,000 words: it has been made at considerable expense to the taxpayer; it is doubtless duly given to the drivers and conductors as directed by the statute, and it would be a privilege to hear their comments on receiving it.

I will, however, now rest content with the speculations, suggestions and criticisms which I have ventured to make, and will pursue my wanderings no further in the theoretical or practical side of this maze of traffic into which I have dared to stray.

It is a troublesome problem, because the principles upon which a solution is to be sought do not yet clearly appear. Thinking over it, and studying the innumerable Acts, Bills, regulations, reports, and discussions which it has produced in the last year or two, has, I confess, reduced me to that unpleasant state of the mental faculties in which

> Thinking is but an idle waste of thought
> And nought is every thing and every thing is nought.

CARROL ROMER.

## *RECENT WORLD ECONOMIC TENDENCIES*

### II

In the final paragraph of the first part of this article I stated that the trade of the world had not kept pace with the growth of the production of wealth, and that that fact pointed to where one of the main sources of trouble lies. It is estimated that in the year 1925 the quantum of world trade—that is to say, its value after eliminating price changes—was about 5 per cent. greater than in 1913. In 1926 the dollar value of world trade will probably prove to be about 10 per cent. less than in 1925. How much of this loss is due to lower prices it is too early to estimate; but probably prices were, on the average, some 5 per cent. down. Should this prove to be the case, then world trade last year was about the same, or fractionally lower, than before the war.

In trade, as in production, there has been a shift of the centre of gravity from Europe and the Atlantic to America, Asia and Oceania, and the Pacific Ocean. The trade of North America and Asia has grown by well over a third, that of Oceania by nearly a third, that of Central America, including Mexico, by between a third and a quarter. But European trade in 1925 was short of the pre-war level by over 10 per cent., or, if Russia be excluded, by over 6 per cent., and that of the Eastern and Central European countries has shrunk to less than three-quarters of the 1913 amount, although the number of trading countries in this part of the world has doubled.

These figures make it clear that the world's commerce has not increased at all in proportion to the world's wealth. We saw before that the total index of raw material and foodstuff production in 1925 was about 117, 12 points higher than the trade index, and further that, whatever the truth about Europe may be, in the United States of America, Oceania, South Africa, and Canada industrial production is undoubtedly well in advance of raw material production. There are, it is true, a certain number of exceptions to the general rule that a smaller percentage of the goods produced are entering international trade. It does not apply to countries largely dependent on the export of a single

commodity when the demand for that commodity has greatly increased. But, despite these exceptions, the rule holds good, and it is in the poorer parts of the world and the poorer parts of Europe that the phenomenon is most striking.

Within Europe, however, there has been recently a change in the distribution of economic activity which is in some respects reassuring. A rapid improvement has taken place in the last two and a half years in the general economic conditions of the Central and Eastern territories. An exceptionally good harvest in 1925 helped to raise the standard of production in that year. But the progress achieved was by no means confined to agricultural products. The well-being of all countries of Europe is essentially dependent on a restoration of the equilibrium of production, and the point which I want to emphasise is worth illustrating.

| | Production of raw materials and foodstuffs. | | Production of raw materials only. | | Trade. | |
|---|---|---|---|---|---|---|
| | 1924. | 1925. | 1924. | 1925. | 1924. | 1925. |
| | (1913=100) | | | | | |
| Eastern and Central Europe— | | | | | | |
| Excluding Russia . . | 88 | 102 | 89 | 100 | 71 | 82 |
| Including Russia . . | 83 | 103 | 79 | 93 | 62 | 73 |
| Rest of Europe . . . | 102 | 108 | 104 | 105 | 97 | 99 |
| Europe . . . . . | 90 | 105 | 93 | 99 | 89 | 94 |

It is too early to ascertain the results for 1926. No doubt the British coal dispute has adversely affected the 'Rest of Europe' compared with the eastern and central group of countries. But even if there had been no coal dispute, it is probable that the more permanent forces contributing to the righting of the balance in Europe would have continued to make themselves felt.

Though this gradual recovery in Central and Eastern Europe is reassuring, the fact that seven or eight years after the restoration of peace the trade of Europe should still be appreciably less than in 1913 is disconcerting.

But the student of world economic conditions, after studying all this evidence [1] concerning the comparative prosperity of the several continents, may easily commit the error of holding too pessimistic a view of the present European situation. It is indeed dangerous to study the facts of to-day without their historical background. Europe was left at the end of 1918 with

[1] For analysis of production see Section I in April issue.

an industrial equipment partly war-worn, partly demolished, with a population of which the most industrially competent were economically demobilised, with undecided frontiers and indeterminate ideals. The Treaties of Peace cut the economic fabric of the continent ruthlessly into morsels. Industrial centres were divided from their sources of raw materials and their markets, and former trade routes were hastily barricaded by tariffs and prohibitions. A new economic mechanism has gradually been built up; but the machine has hardly yet had time to start running.

To losses incurred during the war and the difficulties of reconstruction and readaptation were added a host of new evils resulting from post-war financial pusillanimity. In 1920 the budget of only one European State, namely, the United Kingdom, was balanced; no single European currency, save that of Albania, was on a gold basis; and Albania had no ambitions as a teacher of currency theory. The European exchanges for seven years danced and jumped with spasmodic and tireless energy. Europe has been passing through what is vaguely dubbed a period of monetary instability. That instability has not only rendered the transaction of business from day to day extraordinarily difficult and risky, but has for years excluded the possibility of laying down any elaborate economic programme for the future. The word 'unstable' is indeed inadequate as an epithet. Values have been mobile and agitated like a choppy sea; for the changes in relative purchasing power which have taken place have been due to distinguishable and individual, if not wholly independent, causes. Each country has had its period and rates of inflation, and those periods and rates have not coincided. At certain stages of inflation the paper exchanges of this or that country, because they are scarcely subject to direct control and are largely determined by foreign market conditions, have outrun the domestic price movement. When as a result domestic prices became lower than prices abroad, the country in question obtained a temporary premium on export, its industries were stimulated, and competitors elsewhere suffered. In all inflationary countries the curve of the discrepancy between internal and external purchasing power upon which the export premium depends has oscillated above and below zero and rendered business calculations a question of speculative guess-work.

Cutting across these individual fluctuations of the prices and exchanges of separate States was the more general movement which reached its summit in the summer of 1920 and descended thence with the deflationary policy adopted in the United States of America to touch its nadir in 1921.

Since 1921, when Sweden stabilised her krona, one country

after another has returned to a gold standard—some, like the United Kingdom, by a policy of painful and protracted deflation, some, like Germany and Austria, after suffering all the ruinous uncertainties of hyperinflation, by devalorisation, and others again, like Denmark, by violent and uncontrolled deflation. Whether deflation be gradual or brief and violent, its broad effects are the same. Business with falling prices contracts, confidence in the possibility of making profits is undermined, money wages have to be forced down, and to the natural shrinkage of production resulting from a slackening of demand is added the loss from labour disputes. More especially when the deflation is rapid and is caused by exchange speculation *à la hausse*, as it was in Denmark and Norway, the internal price level is liable to be left above the world level and the quantum of exports shrinks. Stabilisation and devalorisation, as the experience of Germany and Poland has shown, likewise involve a stoppage of business, though recovery may be more rapid than under deflation.

Meanwhile during this whole period, and still in a few countries, over and across the bigger waves of these changes in national and international values have passed the ripples of the day-to-day irregularities of paper exchanges.

The conduct of business in Europe under these conditions has been extraordinarily difficult. As we have seen, the relative strength of the demand for different commodities in inflationary countries was rendered abnormal; international market connexions were broken by the constant changes in relative costs resulting from purely monetary causes; accurate estimates of the costs of production became impossible; the organisation of business suffered owing to the waste of time on almost insoluble problems of accountancy; savings dried up and were diverted either to useless ends or from the very countries in which they were least to those in which the conditions for saving were most favourable.

Since 1918 there has been no year in which the economic revival of Europe has not been checked by some event or series of events which has dammed back the deeper flowing currents of economic progress—the slump in trade in 1920 and 1921, which spread west from the United States and Japan; the uncontrolled inflation in Germany, Austria and Poland in 1922; the occupation of the Ruhr in 1923; the stabilisation crises of 1924 in Germany and Poland; the slump of the French and Belgian currencies in 1925, which almost synchronised with the deflation difficulties in the United Kingdom, Switzerland and elsewhere; the British coal dispute in 1926.

But the situation to-day is incomparably more favourable than it has been at any moment during the last thirteen years.

There are now only nine countries in Europe which have not introduced legislation for the effective stabilisation of their currencies, and of these nine only France and Italy are of sufficient industrial importance to constitute a serious danger to general European equilibrium, were their currencies to depreciate again. The threat of renewed inflation in any of these nine countries with one possible exception is not grave. The budgets in five of these States are in equilibrium, and in the whole of Europe to-day only six countries are suffering from budget deficits. Although in Eastern Europe interest rates are still extremely high, in Central Europe, as a result largely of the influx of foreign capital, the price of capital no longer constitutes one of the major obstructions to industrial recovery.

But perhaps the most reassuring fact concerning the economic situation of Europe, and indeed the world, to-day is that, if a reasonably optimistic view of the chances of permanent stabilisation in France and Italy be adopted, we have good grounds for believing that the problems which business has to face are known. Up to at any rate the end of 1925 it was impossible to foresee what the immediate predominant factor in the economic situation would prove to be, and it was accordingly impossible to seek solutions. Now, if the will to act is forthcoming, the difficulties should not prove insoluble. What, then, are the problems of to-day? What are the factors which still check economic progress? They are no longer the lack of raw materials, as in 1919 or 1920—raw material prices are low; nor the destruction of fixed capital—factory and mining equipment has been restored; nor a critical phase in a commercial cycle as in 1920–1; nor the continuous dislocation of demand through inflation, though we may expect the demand for capital goods to grow stronger. Too often we hear the word 'crisis' employed; there is no general crisis.

There is a surplus of plant, as we have seen in certain industries. England is particularly affected by the new plant in some of her former markets—in China, India, and Japan. In this connexion Europe is faced by the particular danger of cheaper labour in those parts of the world on which she relies for her raw materials under-selling her in the markets in which that labour is employed and thus affecting the value of her fixed capital. This danger is enhanced by higher tariffs imposed with the special object of protecting the new industries in these countries. It is rendered the more acute by the increase in the number of customs barriers and export duties in Europe itself.

Certain of the major industries in Europe, and more especially in England, were dependent to an important extent upon the supplies of capital for export. They sold goods required for the opening up and development of new countries, and these countries

themselves borrowed the money with which to pay for them in London and other European money markets. The contraction in the supply of capital has thus adversely affected both production and trade.

But in addition to these special causes, which have their roots in the conditions resulting from the war and will tend automatically to lose power, there are a number which will continue to influence economic development in the future unless action is taken to control them. They may almost all be classed under one of two general headings—lack of freedom and insecurity.

Economic theory is still based largely on the assumption that the movement of labour, of 'free capital,' of goods and of prices is unimpeded. But ever since the middle of the nineteenth century this freedom of movement has tended to become more and more subjected to control either by labour and capitalist organisations or by Governments. Rates of wages, and therefore the numbers of persons employed, can be and are affected by collective bargaining by labour organisations, the relative prices of goods, and therefore the quantity produced and sold by combinations among producers—the rates of interest and hence the volume of savings by bankers' rings. This tendency towards control and concerted action has grown in force since the war, and it is essential that its importance should be recognised. I am concerned here mainly with such of these obstructions as have an international character.

Since international movement is always and necessarily more restrained than movement within a single country, the establishment of new States in Europe has automatically reduced the freedom of economic intercourse. But it is further probably true that in all fields of activity the control imposed by Governments on economic freedom is more stringent than it was at the beginning of the twentieth century. The movement of persons has been restricted by new immigration laws, by passport control, by excessive charges for passport visa, by laws restricting the freedom of foreigners to establish business or pursue their professions in foreign countries. The net immigration into the United States of America in the four years ending June 1913 exceeded 600,000 persons per annum, of whom the majority came from Europe. The total immigrant quota is now fixed at 165,000. As the American melting-pot is thus to be allowed to simmer without the addition of more metal, the surplus European population will have to find other camping grounds.

The movement of goods is impeded more seriously than it used to be because the number of customs frontiers has increased, because tariffs are on the whole higher, because trade is directly controlled by Governments either by a monopoly of trading

rights, as in Russia, or by prohibitions on imports and exports, and finally because important changes have been introduced in the manner in which new tariffs are drawn up and enforced and commercial treaties negotiated.

It is by no means easy to measure the extent to which tariffs have on the average been raised or lowered. The tariff of any country consists generally of a very large number of distinct taxes on a long series of commodities, and, if an average of these rates be struck, it may be found in certain cases to have only a very restricted significance. An attempt to calculate tariff indices for a considerable number of countries has, however, recently been made,[2] and although the results should not be treated as more than generally indicative of recent tendencies and must certainly not be accepted as mathematical verities, a good deal can be learnt from them.

Two distinct methods of calculation have been employed. The first shows the averages of the various conventional and of the general schedules separately and the second the joint average of all the rates enforced. In addition, special indices have been computed according to the second method for manufactured articles only. The more important results are reproduced on page 640.

While it would be foolish to attach too much importance to a single figure, certain conclusions may be drawn with a reasonable degree of confidence from the general direction of the changes which are shown to have taken place since 1913. In Central Europe, where the number of barriers was increased by the Treaties of Peace, the general level of tariffs is higher than before the war and higher than in most of the rest of Europe. In Scandinavia rates have been reduced. In Spain they have been raised and remain, as they were in 1913, amongst the highest, if not the highest, in the world. In France they were lower in 1925 than in 1913, but are now considerably higher than is shown in the table.

Most of these facts are of course well known. The extent to which the duties on manufactured products have run away from the average of all duties is, however, not perhaps so generally recognised. This is due not simply to the facts that raw materials are generally admitted free and average rates have risen, but to a change in agricultural policy. Agricultural products to-day are as a rule—Spain is an exception—admitted for import at rates of duty which have been increased appreciably less than those which have to be paid on manufactured articles. The new duties have, therefore, raised prices and the cost of living in a manner detrimental to agricultural interests. Special studies which have

[2] *Tariff Level Indices*: League of Nations, Geneva, 1927. (Messrs. Constable & Co., London.)

INDICES OF TARIFF LEVELS[3] (average of duties).

| | Method A. All Commodities. | | Method B. All Commodities. | | Method B. Manufactured Articles only. | |
|---|---|---|---|---|---|---|
| | 1913. | 1925. | 1913. | 1925. | 1913. | 1925. |
| Argentine | — | — | 26 | 26 | 28 | 29 |
| Australia | 12–13 | 14–24 | | | | |
| Austria | 18–22 | 13–15 | 18 | 12 | 18 | 16 |
| Belgium | 6 | 7–23 | 6 | 8 | 9 | 15 |
| Canada | 12–19 | 12–19 | 18 | 16 | 26 | 23 |
| Czechoslovakia | 18–22 | 17–24 | 18 | 19 | 18 | 27 |
| Denmark | — | — | 9 | 6 | 14 | 10 |
| France | 14–21 | 9–31 | 18 | 12 | 20 | 21 |
| Germany[4] | 12–16 | 15–16 | 12 | 12 | 13 | 20 |
| Hungary[5] | 18–22 | 19–22 | 18 | 23 | 18 | 27 |
| India | — | — | 4 | 14 | 4 | 16 |
| Italy | — | 16–18 | 17 | 17 | 18 | 22 |
| Poland | — | 24–28 | — | 23 | — | 32 |
| Spain | 23–30 | 28–81 | 33 | 44 | 41 | 41 |
| Sweden | — | — | 16 | 13 | 20 | 16 |
| Switzerland | — | — | 7 | 11 | 9 | 14 |
| Ugoslavia | — | 20–30 | — | 23 | — | 23 |
| U.S.A. | — | — | 33[6] | 29 | 44[6] | 37 |

been made in a number of countries into agricultural prices and costs seem likewise to point to the conclusion that the agriculturist is obtaining less remuneration for his labour than formerly. The new duties constitute, therefore, not only an obstruction to trade, but an impediment to the production of certain raw materials and foodstuffs.

I have omitted the United Kingdom and the Netherlands from the table for technical reasons. In both countries the average

[3] The reader should be warned against the danger of a false interpretation of these figures. Owing to the character of the data on which they are based they are necessarily of only approximate accuracy and represent a measurement of tariff levels dependent on a somewhat special conception and definition of that term. The absolute size of the indices has little significance. Attention should be paid only to their ratios, and these ratios should be accepted only as illustrative of general tendencies. For a detailed discussion of the principles and problems involved the reader is referred to the Memorandum from which the figures are extracted.

[4] In October 1925 a new tariff was introduced which raised the duties. The indices here given are an average of the old and new rates, and are lower than those which might be calculated from the rates in force to-day.

[5] Since 1925 average rates have been slightly reduced as a result of new conventions.

[6] The 1913 Tariff. The 1914 Tariff was very much lower.

rates of duty are higher—though still lower than in any of the others. They are higher, however, for quite different causes: in the United Kingdom because a few highly protective duties have been imposed, in the Netherlands because the small administrative duty has been raised from 5 to 8 per cent.

Outside Europe Parliaments have been no less busy with erecting tariff walls, not, it is true, on the American continent except in the United States, but in Australia, in India, and in Japan and elsewhere. The newer industrial nations build these walls to foster their young industries, and the older nations build them to protect the fixed capital invested in existing industries.

In addition to tariffs being in most countries generally higher than they were before the war, recent changes in commercial policy have also tended to reduce the business man's freedom of action and power to forecast the probable course of events. Immediately after the Armistice the general feeling of insecurity, the price chaos, the idea engendered by poverty that each nation should conserve such riches as it possessed, the blind groping after some means for employing demobilised armies, the ultra-nationalistic aspirations of the very young, the animosities which the war bequeathed, all combined to induce States to insulate themselves and to prohibit all imports and exports save by special permit. The policy of general prohibition and specific free lists gradually gave way to one of general freedom and specific prohibition lists, and that second expedient in its turn to the system of contingents. As economic conditions gradually improved and the fear of a shortage of raw materials disappeared, contingents were abandoned in favour of the more normal and indirect control of trade through customs duties. But so long as currencies were unstable these duties were subject to continual modification, with the object either of checking imports when the exchange of the country in question depreciated, in the hope that by so doing the balance of trade might be righted and the value of the domestic currency upheld, or of preventing what is called 'exchange dumping.' With the economic fallacies on which much of this policy was based I am not concerned here, though they were largely responsible for the slow economic recovery of Europe; but it is important both to appreciate the progress in ideas which has been achieved since 1919 and the extent to which Government commercial practice to-day still remains more restrictive than it was in the opening years of the present century. Export prohibitions have been greatly reduced in number, but they are far from being wholly abolished. The German-Polish commercial war is still being waged and reciprocal and specific prohibition lists are still in force. In many cases for direct prohibition were substituted export or import duties which were

so high as to be prohibitive in fact. The majority of the prohibitive export duties have been done away with, but the number of duties imposed on goods sold abroad is still much greater than before the war. There are, first, the historic export duties, which are preserved apparently as possessing archæological interest, like the almost universal duty on bones; secondly, those which have been imposed on raw materials with the special object of benefiting the connected industries of those countries in which the raw materials are found or grown; thirdly, those, as in Roumania, which were intended to keep down the general level of domestic prices and the cost of living; and finally, revenue duties.

Export prohibitions and export duties, however, may as a general rule be looked upon to-day as the slowly decaying residue of a policy which is generally abandoned. More important than export duties are certain characteristics of the last phase of European commercial policy.

The practice of binding tariff rates by commercial treaties for a decade at a time, which was common before the war, has given way to a system of conventions which are subject to cancellation on six months' or a year's notice. Of the 180 odd commercial treaties published in the *Board of Trade Journal* between January 1920 and August 1926 all excepting twenty-seven can be altered before the expiration of one year,[7] a period quite inadequate to permit of trade adjustments being made. Further, in contrast with the old system of enforcing new tariff rates after the conclusion of special conventions, the habit to-day is to enforce at once what is known as a fighting tariff for bargaining purposes and reduce the rates little by little subsequently by means of a series of independent negotiations. The result is that, until the new conventions are signed, rates much higher than was ever intended should ultimately be applied are in force, and trade is hampered. Further, although the conventions, once concluded, can be terminated at brief notice, their negotiation, sometimes owing to national jealousies and disputes which have little connexion with economic interests, are frequently painfully slow, and during the period of discussion new vested interests grow up behind what were intended to be temporary barricades, and those barricades are converted into a permanent rampart.

Tariffs, moreover, are not only higher—they are infinitely more complex than they were at the end of the last century. This is due largely to the gradual abandonment of *ad valorem* duties. When duties are imposed on the weight of the goods traded in, as they are in most European countries to-day, those goods must be classified in great detail, for otherwise the cheaper

[7] See *Methods of Economic Rapprochement*: Professor Grossmann, Geneva, 1927. (Messrs. Constable & Co., London.)

and coarser qualities would be disproportionately taxed. These new tariffs have grown up independently of each other, the systems of classification differ from country to country, and, since production is largely influenced by tariffs, costs are increased by the existing lack of uniformity and the constant changes which are introduced. Commercial opinion is, however, generally distinctly in favour of specific tariffs, and the solution of these difficulties is sought, not in a return to *ad valorem* duties, but in some international agreement concerning tariff classification and the prolongation of the periods during which rates are enforced. I am, however, not concerned here with the solutions proposed, but only with the character of the present obstructions to trade and with the causes which have tended to restrict the international exchange of goods.

Though much still remains to be done if trade is to be revived, the progress which has been achieved in the last few years towards commercial sanity is much greater than many writers—especially in England—are willing to admit. The situation to-day is similar in certain respects to the conditions which obtained during the four years 1902–6 when new conventions were being negotiated and gradually enforced, though the present negotiations do not promise to produce the same degree either of freedom or of security as was reached by 1906. The initial rates of duty and the conventional rates are generally higher, less scope is allowed to the most-favoured-nation clause, and the currency of the conventions signed is briefer and too brief. But, for all that, there is a steady improvement year by year. There are even a few brightly-lit breaks in the clouds. Estonia and Latvia, for instance, have quite recently signed a treaty intended to bring about a complete customs union between the two countries. They propose to effect a unification of legislation concerning customs and excise duties, monopolies and labour, to render transport tariffs uniform, to co-ordinate the discount and monetary policies of their central banks.

Deliberate restrictions on the free flow of capital are to-day far rarer than hindrances to the movements of persons and goods. Most inflationary countries have at one time or another endeavoured to stop the export of capital—and failed. But as currencies became stabilised these restrictions were abolished, and few countries—Roumania was an interesting exception for a time—have objected to the import of capital. The accumulation of capital has been checked by inflation, and after stabilisation in certain cases by Government action—in Poland, for instance, by Governmental interference with the market rate of interest and in Austria by special taxes on monetary transactions: the distribution of capital has left much to be desired in countries where the money market was disorganised; but there can be

but little doubt that, if during the last three years the movement of goods had been as untrammelled as that of capital, Europe would be more prosperous to-day than she is.

All these factors which we have been considering—the excess of plant, the acuter overseas competition, the new territorial divisions in Europe, the legal restrictions on free intercourse—have stimulated the pre-war tendency towards national and international industrial combinations, and these combinations in their turn have in certain cases further restricted the production of goods and limited markets. In the face of the difficulties which exist, concerted action is not only inevitable but indispensable. But when industrial agreements are confined to an allocation of markets or rationing of production, though they may steady prices and protect the weaker producers until more favourable conditions arise, they may equally well extend unnecessarily the life of the unfit, victimise the consumer, and maintain prices at a level which is opposed to the wider economic interests of the countries concerned. In many cases, however, their object is more general or wholly different and is directed towards the exchange of information, the technical development of the industry and the promotion of its general interests, whether in connexion with the provision of raw material or the modification of economic legislation.

If Europe is to compete successfully with the younger industrial nations of the world she must produce cheaply—she must produce scientifically; and, as the British inquiry into industrial conditions in America has just shown, that scientific production 'has undoubtedly been made easier by the power of the large combinations of industry.' What on the continent of Europe is called 'rationalisation'—the standardisation of raw materials and products, the simplification of processes, the scientific study of economic tendencies—necessarily demands the active co-operation of the leaders of industry, an exchange of information and of ideas and a joint endeavour to solve the problems of production and sale. The tendency in business to-day is clearly towards such co-operation. It remains to be seen to what extent industrialists will by this means be able to overcome such hindrances to economical production as legal restrictions on the movement of persons or goods may involve, or to what extent economic conditions in Europe in the near future will prove sufficiently stable to render the elaboration and execution of a long-sighted policy possible. But the economic prosperity of Europe cannot be secured by private action alone. Collective Government action is required both in order to remove obstructions to economic freedom and to protect the consumer from the dangers which lurk in all forms of monopolistic control.

Geneva. A. LOVEDAY.

## *SOME FORESTRY PROBLEMS IN THE EMPIRE*

As one of the outcomes of the recent Imperial Conference of the Prime Ministers of the Dominions and the Representative of the Indian Empire it has become evident that at length forestry and the question of formulating a Forest Policy for the several parts of the British Empire is emerging from the position it has so long occupied as the hobby of the planting enthusiast and the profession of a handful of experts, and is taking its rightful place with other industries as a component part of the life and work of the country. In one sense the word 'industry' is correctly applied to forestry, for there are many industries in the world to-day whose raw products either wholly or in part are directly derived from the forest and are dependent upon the maintenance of the forest. During the past century innumerable substitutes have replaced wood and other materials—tannins, gums, dyes and so forth—of forest origin.

Yet no check in the demands on the resources of the world's forests has resulted thereby. The demands have increased manyfold. Great as was the exploitation of primeval areas throughout the latter two-thirds of the nineteenth century, the consumption is far greater to-day. Blocks of forest are now cut wholesale to provide us with our daily news-sheets, and, as a somewhat startling instance that we have not reached the end of new methods of utilising wood, the forest has now to bear the additional brunt of providing the raw product for articles of feminine attire.

With a recognition, even if as yet but partial and half-hearted, on the part of administrators and politicians of the gigantic demands made on the arborescent areas of the globe at the present day, it may be regarded as scarcely surprising that the position of forestry, using the word in its widest sense, has forced itself to the front and gradually come to hold the imagination of sections of the communities which go to make the British Commonwealth of Nations.

It is impossible to deal in this article with the previous history of forestry either in Britain or elsewhere within the Empire. Parts of it have already been treated of in the past in the pages of

*The Nineteenth Century*. One point in this connexion may, however, be made. In the past it has been customary to regard the problem from the individual standpoint of the particular portion of the Empire concerned. In Great Britain, for instance, a perusal of forestry literature of the last half-century will show that the idea of forestry in Britain, or the afforestation problem, has mainly revolved round the question of whether so many million acres of land could be planted up in the island. Progress elsewhere in the Empire was no concern of ours, and until comparatively recently the fact that there existed in one part (India) an efficient forest service with a definite forest policy was unknown, or at least not appreciated, and the possibility that lessons might with advantage be learnt from the experiences of that service was ignored. If any distinct idea was held on the subject of the necessity for having a forest policy it was regarded from the insular standpoint that, the conditions being so different (for so it was assumed, and by many the belief is probably still held), each portion of the Empire would have to work out its own problems. And, moreover, as in some of the Dominions there existed enormous forest areas, the necessity for enunciating a forest policy was held to be of slight importance; whilst in many of the Colonies there was little or no demand save for one or two species of trees which were being exploited, more or less unchecked, for the world's markets, without expense to the Governments concerned. With the sole exception of India, the Governments of the Dominions or Colonies received little revenue from their forests. The chief object was to replace them by agriculture or planting and mining interests, from which revenue in the shape of assessments and so forth could be obtained—the grants for the latter purposes being made without consideration of the future possible demands by the community upon the remaining forests. Or, finally, offers of long leases, or, worse still, sale outright, of large forest tracts to timber merchants were regarded as a statesmanlike policy tending to 'open out' a new country.

Proceeding hand in hand with this ignorant utilisation of great natural forest resources was the eminently British (and often wise at the outset) policy in administration of interfering as little as possible with the habits of the 'native' or indigenous populations, however wasteful these habits might be. One of the oldest and most pernicious forms of wasteful utilisation of the forest, both in Europe (formerly) and elsewhere in the world at the present day, is the unchecked practice of shifting cultivation. The cultivator hacks down an area of forest, burns the material *in situ*, grows a crop on the area for a year or two, and then proceeds elsewhere to repeat the process. In many parts of our Empire this practice continues unchecked, even though we are now well aware of the

enormous destruction of a potential wealth of a country it involves and the possible deterioration of the soils so treated. We have been administering territories for years in some of which we now have forest services, and yet the practice is still in force. The destruction is the work of small and backward populations, is against the interest of the community at large, and is a direct check to the advancement in general progress and well-being of the country concerned. The practice is not confined to the British Empire. In many of the South American republics the method is still in force. These countries are held to contain inexhaustible resources of tropical woods which some day will be placed on the market in a utilisable form. What proportion of these great areas has been subject to this shifting cultivation and is consequently covered with an aftermath of worthless jungle is unknown. The Indian forest officer could perhaps form some idea, for India has been through this experience in the past.

Where has this policy or want of policy with reference to the forests of the Empire led us? Lord Clinton summarised the past history as regards this country in an address he recently delivered to the Edinburgh University Forestry Society. Alluding to early times, he wrote:—

> The very fact that this country was, in the words of a Roman emperor, 'one horrid forest,' may have proved our own undoing; where you have an overwhelming supply there will always be waste; this is typical not only of the British but of the whole human race. It is only demand, use and scarcity that constitutes a value, and with these lacking there is little possibility of preservation.
>
> But from a very early date a note of anxiety as to the future of the forests had been struck, and, in view of our present position, it is worthy of remark, not that so few efforts were made to attempt preservation, but that the efforts were so many. Right through the centuries, increasing as they grew older, the Statute-book teems with well-meant laws and regulations dealing with the forest problems, and we may wonder that the effect has been so small. The real trouble lay in this, that with no possibility of looking forward, our ancestors had no real objective before them, consequently there could be no continuity in their action or method.

Tracing the forestry history from the action of the Norman kings in enclosing areas for hunting purposes, he passed from the Act of 1543 for the preservation of woods to the action of Pepys and Evelyn (1660), who voiced the general alarm that no oak would be left for shipbuilding. A century later the same question again came up, and afforestation work was again undertaken to deal with the crisis. In the following century iron replaced timber in ship construction, coniferous timbers replaced to a great extent broad-leaved species, and planting work was left to the private proprietor, the Government taking no further interest in the

matter. It is true that commissions were appointed at intervals, but their recommendations remained a dead letter. Lord Clinton correctly summarises the position as 'feverish activity when the danger is present, entire forgetfulness when the danger is past, and so on right up to the present day.'

Outside Britain the history of the Empire forests, with the exception of India, has until recently been mainly confined to lumbering—in other words, the exploitation of such timbers situated in accessible forests as could be placed on the world's markets. In this direction both the Dominions and Colonies have, in varying degrees and according to the values of the timbers, taken part. In those countries where the forests were large utilisation for local requirements has been unchecked and wasteful in the extreme, combined with an increasing destruction by fire, causing conflagrations of such a magnitude as to threaten to engulf and at times destroying whole settlements.

The realisation arrived at by the few in different parts of the world that a shortage of supplies threatened industries dependent either in part or wholly on wood came before the Great War. But even then the question as envisaged at the time related to one source only, the coniferous, or soft wood, timbers. The reckless lumbering of the great, and for a time apparently inexhaustible, forests of the United States during the latter half of the nineteenth century, combined with the heavy exploitation of the forests of Sweden and Norway, to supply the British markets, indicated to those cognisant with the facts that a dangerous position was being reached by the end of the century. Already early in the twentieth century the United States was resorting to Canada for pulp supplies. The increasingly wasteful exploitation combined with fires in the latter Dominion was becoming notorious. The demands of the markets were ever on the increase, and so were prices. The possibility of being able to replace the soft woods in some industries by timbers from the tropical forests appeared, even to those best acquainted with the economics of the timber industry, remote. What was to be the outcome?

So far as the British Empire is concerned, it cannot be said that the responsible administrators of the various parts had paid any serious attention to this problem or were even satisfied that a problem of any vital importance had arisen.

The war brought about a sudden realisation both in Britain and throughout the Empire that there was a forestry problem to be considered, if only owing to the enormous difficulty, which faced us on every part of our far-flung fronts, of obtaining the necessary supplies of timber. In Britain our troubles yearly increased throughout the struggle, and the price we had to pay for the timber and other produce was colossal owing to what Lord Clinton

rightly designates as ' our entire forgetfulness when the danger is past.' Had it not been for India and the fact that in that country there was an organised forest service to deal with the sudden gigantic demands, it is difficult to see how the supplies essential to carry on the campaigns in Mesopotamia, Egypt, Salonica, Aden, East Africa, Persian Gulf ports, etc., could ever have been obtained.

It is not proposed here to recapitulate the activities in forestry matters which have been one of the outcomes of the war. The chief factor of importance is based upon the recognition by the Imperial Conference that the formulation of a forest policy has now become imperative in the future administration of the component parts of the Empire—that, in fact, there is a forestry problem to be considered, and that a forest policy in accordance with the local requirements of the several communities should be drafted and adhered to.

This result is one of major importance, but its acceptance and enforcement must depend upon popular opinion. It is in this matter that education and enlightenment seem to be required. The position already arrived at in the Empire and the problems which face us merit a short study.

Prior to the war work either of a purely protective nature, such as attempts to introduce fire protection in Canada and Australia and so forth, had been commenced, though the efforts were of a spasmodic kind. In other parts in South Africa and New Zealand plantations were being formed, with the object in the former case of reducing the sums of money paid for imported coniferous timbers and of supplementing the small area of indigenous forest that country had to depend upon. In India concentrated methods of regeneration by planting and sowing were being experimented with in several provinces, whilst in some of the Colonies the first attempts at forming plantations were being inaugurated. In other words, the constitution of new forest areas or the regeneration of old ones was making progress.

It has been said that previous to the war the chief problem in timber requirements was connected with the soft woods alone. The experiences of India in supplying the demands of the war fronts in the Middle East showed that a number of timbers previously of no market value outside India, and but in small demand within that country, were utilisable for a variety of purposes. In fact, they were used in increasingly larger amounts. Experiments since made with some of these timbers and others previously characteristically lumped together as useless ' jungle woods ' would appear to show that with proper seasoning or other treatment they may replace some of the finer timbers, the real luxury woods, for general purposes in railway and other industries.

In other words, the stage has been reached when it appears possible that some of the timbers of the tropical forests may come to the assistance of the world's markets, or parts of them, in replacing the decreasing supplies of the coniferous soft woods. Already in India research and experiment have obtained results which lead the Railway Department to hope that in a near future they may be able to depend to some extent on other woods than those commonly in use, such as teak, sal, and deodar, for a portion at least of their requirements in sleepers, carriage-building timbers, and so forth.

Here we have a problem the solution of which will open out demands from forests as yet untouched in many parts of our Empire, and reduce the dependence of the world's markets for some 80 per cent. of their requirements on the diminishing primeval conifer tracts, now mainly restricted to Canada and Russia. This opens up a new and most hopeful factor. At the World's Forestry Conference in Rome last May it was suggested by a French representative that France could undertake to supply Italy from West Africa with a considerable portion of her requirements in timber—a proposition which throws a startling light on the new possibilities in front of the tropical forests.

The utilisation of the resources of the forest, great as is its interest and economic value to the present community, is, however, but one side of the question. There have rarely been insuperable difficulties to the extraction and utilisation of timber supplies, as the history of the world's forests well demonstrates. It may be assumed, therefore, that man in one way or another will find it possible to utilise what remains of the virgin forests once the demand makes their exploitation commercially remunerative or necessary.

A problem of greater significance and importance at the present time would appear to be that connected with these new young forests now being brought into being in many different parts of our Empire.

At home the Forestry Commission have the work in hand. In India increasingly large areas of young woods of many diverse kinds are annually being added to. In South Africa a great conifer plantation scheme is being achieved, and New Zealand is engaged in the same work. Other Dominions and Colonies are employed in formulating schemes all having for their object a similar outcome.

What is, then, one of the most important forestry problems facing the administrative and executive foresters to-day? It would appear to resolve itself into the question, How are these increasingly large areas of young woods and forests to be adequately thinned?

In the past work of this nature in Britain was either not done or left too late, and then the woods were over-thinned. The result was the production of a poor, rough quality of timber which the markets would not accept, and which led to the disrepute into which British timber fell. In India until comparatively recently the staff were engaged in removing the large trees from the primeval forests, and, owing to the enormous areas involved and the paucity of the staff, thinning operations *quâ* thinning scarcely came into the province of possible practical forestry operations. Elsewhere in the Empire the question had not made its appearance.

The thinning of young woods, we know, costs money, and in many cases the material removed may prove unsaleable. To those having a knowledge of forestry it is a truism to say that there comes a time in the life of a young wood when the thinning must be made, questions of expense being ignored or subordinated, if the wood is to produce ultimately the best results. Starting from this basis, how is the increasingly large amount of work of this nature to be undertaken? It is a new problem in the history of forestry within the Empire as a whole, and is increasingly urgent.

In Britain the Forestry Commission are to some extent making provision by only planting up a portion of any area they acquire during the present planting period. They will thus ensure a sequence of crops, and may hope with an increased staff to be able to cope adequately with the necessary thinning work. But this is only one side of the afforestation work in Britain. It is to be hoped that the private proprietor will still prove a mainstay and will continue to plant. It will be eminently desirable that his woods are properly thinned in the future, even if the State undertakes or assists in the work in the younger stages when the material is unsaleable.

There remains India, with its expert and efficient Department, and the rest of the Empire in which the younger Forest Departments are yearly becoming more efficient. Has the gigantic work which the proper thinning of the extending young woods overseas will entail been as yet realised to the full? It would appear that the adequate realisation by the few, the older administrative officers, is only a beginning. Since in order to make the necessary thinning in the woods of a district a fully trained staff in sufficient numbers must be available and an appropriate sum must be annually budgeted for, it would seem necessary that the administrators and their finance departments should be educated in the matter of this new problem. The men who will in the end be responsible for the actual performance of this work will be the district officers, already for the most part

overburdened with work. Every decade the work connected with thinnings will become heavier, and a larger staff having an expert knowledge of this, the most exacting of the trained officer's work, will be necessary. And adequate funds must be made available.

It is held by some that this work will be rendered easier by wider planting, by the research work carried out by sylviculturists, and so forth. These may be or are necessary aids. But the last word in this matter rests, first, with the desirability of producing the best article possible for the market, and the wider the spacing the rougher and knottier the timber; and, secondly, with the district officer, the man who will always remain, together with his subordinate staff, the responsible agent for carrying out the work, in whose hands lies, in fact, the future of the young woods now being created.

It would seem, therefore, that a paramount duty of the expert forest administrative officer of to-day is to draw the attention of the responsible authorities of his Government to the importance of this new technical problem, which is now becoming so urgent a factor in its bearing upon the future of the new forests of the Empire—a problem as vital as it is novel in our history.

E. P. STEBBING.

## THE NEW ROUMANIA

A LOVE of travel and journeys in recent years through Soviet Russia and Poland had turned my thoughts to Roumania, and more particularly to the province of Bessarabia, which adjoins the Russian frontier and was until recently under Russian rule. It was therefore a privilege early this year to be given the opportunity of a journey through Roumania with exceptional facilities provided by the kindness of the Roumanian Government. All through my travels I met with the greatest hospitality and assistance. I was also impressed and touched by the very genuine friendship and admiration everywhere expressed for England.

In judging the new Roumania that has sprung up since the war, one must bear in mind two things—first, her very rapid growth, for she has increased threefold in size since 1914; and, secondly, that it is only sixty years since she was under Turkish rule. These new possessions, which came to her at a time when she was exhausted by the Great War, are proving a weakness rather than a strength, for they have caused her neighbours to cast eyes of envy upon her. Bulgaria and Hungary, both potentially strong from a military point of view, are merely awaiting a favourable opportunity to regain some of the territory taken from them and allotted to Roumania by the Treaty of Versailles, and, whilst awaiting their opportunity, are preparing the ground by incessant propaganda. Again, in the north, Bolshevist Russia has never ceased to endeavour, first by force and later by subtler methods, to undermine Roumania's authority in Bessarabia. In addition to these difficulties, only some six or seven years ago universal male suffrage was placed in the hands of a totally uneducated and largely illiterate population. When we Westerners, with hundreds of years of political experience behind us, exclaim in horror at the corruption of the Roumanian election methods, the Roumanian answers quite frankly: 'It must be so; you cannot leave the choice of a Government in the hands of ignorant peasants.'

The political situation in Roumania to-day is comparatively simple. The People's Party, which is in power, is led by General Averescu, a man of great personal charm, honest, more soldier

than statesman, and universally beloved. After the war he was the idol of the army, and to him the credit is largely due that the Roumanian troops escaped the infection of Bolshevism although in such close contact with the Russians. Actually, however, the strongest party in the State is the Liberal Party, which numbers in its ranks the great majority of able and intellectual men. At the head of this party is M. Bratianu, the ex-Prime Minister and a great personality. He may be described as the power that directs the destiny of Roumania and that will leave its mark on the history of the Balkans. Of other parties only the Transylvanian Nationalist Party and the Peasants' Party are of importance. Not long ago these parties formed an alliance, but this has broken down on the question of the succession of Prince Carol, and a potential political danger to the Government has thus been removed.

The tragedy of the country is the illness of King Ferdinand (a good and very popular king), and the consequent difficulties of the succession. A long regency is bad for any country and might be disastrous for Roumania. On the other hand, the suggested reconstituted regency may prove strong enough to deal with any emergency. I think the possibilities of Prince Carol succeeding are remote. He has a certain following among the younger officers of the army, but the army as a whole may be trusted to remain loyal to the Government. Except for the rather disgruntled Transylvanian Party, he appears to command little political support, and this party uses the succession question chiefly as a pretext for making difficulties for the Government. Various alarmist articles have appeared in the Press from time to time regarding the possibility of a revolution in Roumania in the event of the King's death. In such a possibility I do not believe, both for the reasons given above and also because the Roumanian is by nature a peace-loving and easy-going individual.

When studying the conditions in new Roumania one must not forget that here, no less than in Russia, a great revolution has taken place—the Agrarian Revolution. The difference is that in Roumania never in a single instance did it cease to be legal and not a single drop of blood was shed. To General Averescu must be given the credit for this reform, though it was in the King's mind as long ago as 1912. The Agrarian Reform measures gave the land to the peasants and prohibited anyone from owning more than 300 hectares of arable land. The remarkable thing about the Reform was the spontaneity with which 8000 to 10,000 big landowners voluntarily gave up their heritage in order that, as a reward for their services in the trenches, the desire of the peasants to possess their own land might be satisfied. The landowners gave up their land without a protest, even though,

owing to the sudden fall in the lei at the time, they were in many cases reduced to great poverty by so doing. I know personally of one man who, in return for all his acres, received the sum of 400*l.* To-day the peasant farms his own property of from five to ten hectares, according to the density of the population in his district. Of late years his prosperity has greatly increased; there are more cattle in the villages, food costs him nothing, and taxes are low. His only outlay is on cotton yarn imported from Lancashire for making clothes. He is, on the whole, well fed, well dressed, and has an altogether higher standard of life than formerly. The conditions, of course, are not perfect, and many grievances and inequalities exist, more especially in Bessarabia. The reforms in the year before Roumania's occupation were carried out in a drastic manner at the instigation of the Russian soldiery, who, already permeated with Bolshevist ideas, were deserting the army and hurrying home to seize their land before it should all be divided up.

Against the advantage that Roumania has gained in averting the imminent danger of Bolshevism by her Agrarian Reforms must be set the great financial loss to the country owing to the consequent decline in production. Before the war Roumania was one of the six or seven largest grain-exporting nations in the world, but now this export trade has practically ceased. As in Russia, the breaking up of the large estates has greatly reduced the production of corn. Large acres can supply large shipments, small acres cannot. This state of affairs will doubtless be remedied to some extent with the introduction of co-operative methods, agricultural machinery and improved transportation facilities, and the Government has already initiated measures to this end. The Roumanian peasant is very adaptive, eager to learn, and quick to grasp new methods. He is also capable of appreciating the value of new machinery and of acquiring the necessary knowledge for its employment. In any case, whatever may be the advantages and disadvantages of the Agrarian Reform, it must rank as one of the most important political events in Europe since the war. The great point about it was that it was carried out in time. The tragedy of most revolutions is that they are the outcome of years of bitterness and discontent, and when finally the crisis comes, it is too late, and changes which might have come about peacefully are born in violence and bloodshed.

Improved communications are one of Roumania's most pressing needs, and to this her Government is fully alive. Her railway system is entirely inadequate and many new roads are required. All her commerce is handicapped by the lack of transportation facilities. The production of oil, for example, which is one of Roumania's greatest sources of wealth, could be

readily increased were it not for the impossibility, as matters stand at present, of transporting any greater quantity away from the oilfields. The improvement of her road and railway systems is no less essential to Roumania's full agricultural development, and this applies in particular to Bessarabia, which possesses some of the richest black soil in Europe. From the military point of view also it is vital to the defence of Roumania's northern frontier that existing railway lines should be increased in carrying capacity, so as to facilitate the movement of troops to the Dniester front. The whole problem is fundamentally one of finance, and Roumania's greatest present need is a foreign loan for railway development. If England does not avail herself of the opportunity for floating such a loan, there is little doubt that Germany will step in. The placing of capital in a foreign country is, of course, entirely a business proposition, and it would not be reasonable to advocate it on purely sentimental grounds, nor from the desire to help a deserving friend. I am, however, convinced that a loan to Roumania for the purpose of improving her railway system would repay itself many times over in the increased production and export of corn and oil alone, and would, in addition, by increasing Roumania's military security, render more remote the chances of war in South-East Europe.

So much has been written about Bessarabia lately that I hesitate to add, however slightly, to the volume. Only the fact of a very recent visit, coupled with unusual facilities for studying her multifarious problems, has given me the courage to do so.

Bessarabia, which is now again part of the parent nation, returned to Roumania after a lapse of 106 years, for it was annexed by Russia in 1812. During that period, however, the three provinces of Kahul, Ismail, and Bolgrad were given back to Roumania after the Crimean War, but were once again returned to Russia in 1878 under the Treaty of Berlin. The general rearrangement of Europe and events in Russia gave Bessarabia her independence immediately after the Great War, and her governing body voted for reunion with Roumania. This fact, that Bessarabia elected of her own accord to throw in her lot with Roumania, is an important factor in the present situation. England, France, and recently Italy have recognised the new Roumanian boundary. Roumania is now separated from Soviet Russia by the River Dniester, which is the frontier not only between two countries, but between two different worlds and two utterly different conceptions of life. On one side we find the old conception of a gradual evolution of humanity by peaceful and constitutional means, and on the other a new conception working through destruction, violence and terror. With the exception of

the period already mentioned, the River Dniester has been the frontier since 1367, when the ruling prince of Moldavia, Etienne le Grand, claimed Bessarabia as his own and defended the frontier forts, whose ruins can still be seen, against the onslaughts of the Turks, for which services he was given the title of 'Defender of Christendom' by the Pope. For the second time in history these grim old forts now witness the warfare which is being waged by the forces of destruction and barbarism of the East against the civilisation of the West.

The difficulties which beset Roumania in Bessarabia to-day are many. There is the shortage of transport facilities, of which I shall have more to say. Next comes the question of education, with which must be taken into consideration the nationality of the population. This comprises Jews, Turks, Bulgars, Armenians, Ukrainians, Russians and some German and Swiss colonists in the south, besides Roumanians and Moldavians. Many of these nationalities were introduced by Russia over 100 years ago, partly to colonise the country, and partly to dilute the large Moldavian (Roumanian) population which then, as now, formed a large majority of the inhabitants. Obviously the universal language to be taught in the schools must be Roumanian in the interests of the inhabitants themselves, since it is essential for the children on leaving school, in no matter what capacity they are to earn their living. I was much impressed by the excellent education given, which included several languages, French and German being compulsory and English optional. Northern Bessarabia and part of the Bukovina are inhabited chiefly by Ukrainians, whose language is Russian, and these people, who naturally attach a great value to their language, labour under a grievance that Russian is not taught in the schools. I would suggest that it might be good policy on the part of the Roumanian Government to remove any semblance of a grievance by providing Russian teachers in schools where there is any large number of Russian-speaking pupils and by making small grants to aid existing Russian schools, which are to-day entirely supported by the impoverished Russian population. By these foregoing remarks I do not, however, intend to suggest that the Russian language is forbidden or that the Russian population is in any way oppressed.

The most crying need of Bessarabia is an improved road and railway system. Railway lines are few, and, since they were built solely in order to take goods to Moscow and Odessa, they are badly situated to meet present-day conditions. Of roads there are practically none; in the whole of Bessarabia, a country nearly half as large as England, there are only two sections of metalled road, each 60 to 80 kilometres long. For about six

months in the year, when the ground is literally a sea of mud, towns remain completely isolated for weeks at a time; in summer, and when the land is frost-bound in winter, tracks are used by carts and sleighs wandering across country over the steppes. This lack of communications, besides preventing the economic development of Bessarabia, makes the problem of moving troops and stores one of extreme difficulty in organising the defence of the province against invasion.

The Roumanian Government has been exceedingly fortunate in the choice of General Rascanu as governor of Bessarabia. He is himself a Bessarabian, and therefore thoroughly knows the people with whom he has to deal. He is a man of arresting personality and a hard worker. He has the gift of understanding and sympathising with the people, coupled with a realisation of when a light hand is required and when severity is necessary. It is difficult, however, for Roumania to provide the right men to hold official positions, as there are not enough educated men of any one political party to provide not only the prefects, but the considerable number of subordinate officials in the various districts. To remedy this state of affairs the results of the improved educational system must be awaited.

There is, of course, some discontent and grumbling among the population, and it must be admitted that there are faults on the Roumanian side, but, in fairness to Roumania, one must remember that these people look back to the pre-war Russian *régime* as to a perfect time. Russia was so big and the seat of government so far away that no one interfered with them; living was cheap and taxes low in those days, and if not paid one year they drifted on for two or three years; Russia forgot—she was rich and did not need the money. But in the poorer post-war world of to-day taxes, even though moderate, must be paid; schools must be built; roads and railways must be constructed. In addition, Bessarabia has been through four lean years of bad harvests, and in the south large wine-growing areas have lost their market owing to the route to Odessa being closed. This last grievance will, however, be remedied to a great extent in the course of the next year, as new markets are being found in Poland and new transport facilities are being arranged. On the whole, I do not think that it is the yoke of a new Government that presses on the people of Bessarabia, but rather the inevitable conditions of an impoverished world.

From the wider point of view the chief interest of Bessarabia is undoubtedly the fact that along the River Dniester a barrier has been erected by Roumania against Bolshevism. It is being maintained unaided at great expense and at some cost of life, for never a week goes by but some frontier sentry loses his life.

When, knowing as I do the state of things existing on the other side of the Dniester, one sees the conditions in Bessarabia—the comparative prosperity, contentment and freedom—one cannot fail to be struck by the large measure of success Roumania has achieved. The matter interested me particularly because when I was in Russia eighteen months ago so much was heard of the Soviet Government's concentration on Bessarabia, both by armed attack and by propaganda. It was said openly: 'If we can win Roumania, then we shall have a very convenient jumping-off place from which to attack the rest of Europe.' I think this point is hardly sufficiently realised in England, nor do we sufficiently acknowledge the debt of gratitude we owe Roumania for maintaining her barrier. We are inclined to be slow to recognise the danger at our gates, but I think that the peril of Bolshevism has been brought home to us by now and should prove an incentive to us to support Roumania in her self-appointed task.

The Soviet tried at first to create trouble in Bessarabia by means of its usual weapon terrorism, and, up to 1924, incessant revolutionary risings took place. But the Bessarabian peasant is, on the whole, level-headed, and the comparative failure of violent methods has caused them to be abandoned in favour of the more insidious weapon of propaganda. This is chiefly spread by Jews in Russian pay, and the task of combating it is by no means easy. The Jewish population in Bessarabia is numerous, amounting to 60 or 70 per cent. in some towns and villages, and provides a ready medium for the spreading of Soviet propaganda. It has been proved that the instigators of three out of four of the Communist plots and risings which have troubled Bessarabia during the last few years have been Jews. On the other hand, no one is more opposed to Soviet rule than the Russian minority in Bessarabia, whilst the peasants generally, no matter of what nationality, equally have no wish for Bolshevism. This is not surprising, as the peasants have only to look across the frontier or study the Russian refugees who come across the frozen river in winter to be struck by the difference in the condition of their neighbours. This contrast impressed me very strongly, as my recent visit to Russia enabled me to compare the comparatively prosperous Bessarabians with the terrorised poorly-clad people on the other side of the Dniester. As regards military action on the part of Russia, I do not think that there is at present much danger of an invasion by the Red army; but nothing is certain in Russia, and, in the event of some crisis in foreign politics or in internal affairs, a frontier war might serve as a counter-irritant, and an attack on Bessarabia might in consequence be attempted.

Some of the more salient characteristics of the New Roumania, and more particularly of the province of Bessarabia, have now

been outlined, and some account of the difficulties and dangers confronting her has been attempted. In conclusion I may say that my visit to Roumania has convinced me that she is a country of great possibilities, is fortunate in having wise and far-sighted leaders, and possesses almost unlimited undeveloped wealth of all kinds. Given foreign capital and a period free from internal and external strife, I can foresee her becoming a power, and a power for good, in the commonwealth of the world.

DOROTHY HANBURY.

# *THE CHINESE PROBLEM THROUGH CHINESE EYES:*

## Sun Yat-sen and the Three People's Principles

*[The first part of this summary of Sun Yat-sen's lectures appeared in the February number and the second part in the April number of this Review. Dr. Sun's writings are the most potent political influence in China at this moment; his book was published in China a little more than a year ago, and very large numbers were sold. No English translation of these writings exists, and an understanding of Dr. Sun's teaching is necessary if the outlook of the Chinese is to be appreciated.*—Editor, *The Nineteenth Century and After.*]

### III

The third part of the San Ming Chu I deals mostly with China's internal problems. It is an attempt to outline a theory of social reconstruction applicable to the peculiar social conditions of modern China. If there is not much of originality in his suggestions, Sun at least displays some shrewdness in his selection of ideas and methods drawn from Western programmes of social reform, and in his adaptation of these to the needs of his own country. But unfortunately he allows his anti-British bias to emerge more than once in the midst of an otherwise interesting exposition, and usually with the effect of spoiling his argument. In summarily outlining these lectures the same endeavour has been made as in the previous two parts to do Sun full justice by giving as much prominence to his reasonable pronouncements as to his wilder extravagancies. But since, in this third part in particular, Dr. Sun appears to allow himself the licence of now and again departing from his proper subject, in order to indulge in his quite gratuitous innuendoes against Great Britain, it has seemed permissible to retaliate by inserting into the outline of his lectures a little more of criticism and of refutation than we have previously permitted ourselves.

That China has some just causes of grievance against the foreign Powers no open-minded man would dream of denying.

The worst of these are connected with abuses of the privilege of extra-territorial rights held in China by foreigners. Curiously enough, this is a subject to which Dr. Sun does not refer in the whole series of these lectures. On the other hand, many of the so-called grievances which are causing the present agitation in China are purely imaginary. The fact that the Chinese are raising such an outcry about certain matters is a proof of their ignorance either of economic laws or of historical facts.

One of the chief causes that excite the rage of the Chinese against foreigners is the existence of large and wealthy foreign settlements, or 'concessions,' in close proximity to many of their largest cities. They see splendid buildings, broad and well-kept streets, open parks. They see foreigners living in luxurious houses, driving in cars to racecourse and club, and enjoying all the modern conveniences and comforts that money can buy. They contrast these things with their own narrow, squalid alleys, their uncomfortable houses, and the huddling together of their massed population. Then they say: 'The foreigners have acquired all this wealth by exploiting our country. It is the foreign trade that is robbing us and keeping us poor. All these things rightly belong to us. If the foreigners will not give them up, we ought to take them by force.'

What the Chinese cannot or will not understand is that honest trade is not exploitation. If wealth has come out of China, then wealth must have been given in exchange. If the foreigners have received China's raw materials, they have paid honest silver for them. If they have taken silver from China, they have given all kinds of manufactured articles in return. The foreign merchant has acquired wealth, undoubtedly. But so has the Chinese merchant who dealt with him. Furthermore, a respectable proportion of the foreign merchants' gains has been returned to China. For the construction of all these buildings and streets and public works has given employment to thousands of Chinese coolies, with higher wages and (in all probability) more humane treatment than they would have received at the hands of any Chinese capitalist.

Beside the existence of concessions, the other main cause of discontent on the part of the Chinese Nationalists is the foreign control of China's maritime customs. This certainly, as Dr. Sun shows, involves a considerable amount of hardship to China under modern conditions. It must not be forgotten, however, that during the past sixty years these customs dues, imposed at foreign dictation and collected under foreign supervision, have provided one of the two reliable sources of income upon which the Chinese Government could always depend, the remaining one being the Salt Gabelle. It must also be remembered that the

system arose out of certain historical circumstances. At the period of its initiation it was seen to be the only *modus operandi* which made it at all possible for foreigners to carry on trade with China. How far the system now requires to be modified, or whether it ought to be superseded, are questions which ought to be settled, not by boycotts and mob violence, but by a sober inquiry into present conditions.

## Part III.—The People's Livelihood

The third part of the San Ming Chu I deals with the subject of 'The People's Livelihood.' By this is really meant 'Socialism,' but for two reasons Dr. Sun prefers to avoid the use of the latter term. In the first place, there is, he says, considerable confusion (in Chinese minds) between the practical methods of Socialism and the study called Sociology. In the second place, 'Socialism' is itself an ambiguous term which may indicate any one of a considerable number of social policies: there are said to be fifty-seven different kinds of Socialism. For these reasons Dr. Sun prefers to use two Chinese characters whose meaning is perfectly well understood by all classes of Chinese, and which can perhaps be best rendered as above by the phrase 'People's Livelihood.' For the root problem of a society is the maintenance and preservation of life of all the members which compose the society, and this is well indicated by the term adopted.

Now human society has passed through five well-marked stages of development. The first (primitive) stage was that of vegetarianism, when men simply subsisted on the food which they could find ready to hand among the products of the earth. This was succeeded by the period of the fisherman-hunter, when men contrived weapons and snares with which to catch and kill fishes and animals for their food. The third stage was that of the nomad shepherds, who kept domesticated animals and wandered from place to place seeking pasture-lands for their flocks and herds. The fourth stage was that of agriculture, in which men settled on the land and grew their crops of grain and vegetables for food. The fifth is the stage of industrialism, ushered in by the invention of machinery and the growth of the capitalistic system.

Each of these five stages has been more complicated and more toilsome than the one before it. The last one in particular, owing to the speeding up of production, the crowding together of workers in manufactories, and the concentration of wealth in a few hands, has led to a host of social problems, and it is in order to try to solve these problems that the various theories of Socialism have been propounded. The development of industrialism has proceeded much further in Europe and America than it has in

China; indeed, China is only now beginning to feel the effects of the so-called 'industrial revolution' which took place in Europe during the nineteenth century. But the effects of industrialism are commencing to be experienced in China, as the following example will show.

For many centuries, and until a few decades ago, all the merchandise which came from the inland provinces to Canton was carried on the shoulders of men along one or other of two great roads, the one by Nan-Hsiung and the other by Yoh-Chang. These two high-roads were thronged with coolies coming to and fro, and teashops did a prosperous business all along the way. Each coolie could carry a load of 100 catties (about 140 lb.), and with this he could travel about 50 li (20 miles) per day. But now a railway line connects Hwang-Sha in the north with Shao-Kwan near the sea, a distance of 500 li. An engine drawing twenty loaded trucks can travel in eight hours what used to be a ten days' journey, and each truck will hold the loads of 500 men. Consequently the railway can transport in eight hours a weight of goods which formerly required the labour of 10,000 coolies for ten days. To put the matter in terms of money, if we take the wages of a carrying coolie to be $1 per day, the cost of transport by men would amount to $100,000, while the railway freight is only a few thousands of dollars. So now few coolies are to be seen plodding along the two high-roads to Canton, most of the teashops are closed, and thousands of men are left to starve or else to find other employment.

There are other signs that the industrial revolution, which has already transformed life in the West, is commencing to dawn upon China. The establishment of large cotton mills in Shanghai, Hankow and Tientsin; the introduction of machinery for various purposes such as weaving and knitting; the opening of coal mines, all these are fast bringing China face to face with many social problems, new to her, but already of long standing in Europe and America. Western theories of Socialism have all sprung out of the attempt to remedy the evils which have arisen from the new industrial conditions. Socialism, in fact, is an endeavour to mitigate the sufferings and relieve the injustices which are borne by the labouring classes in a highly industrialised state of society. The only opponents of Socialism are the capitalists, who are an entirely selfish class, and who approve of the present system because it is most beneficial to their own interests.

The earliest Socialists belonged to the Utopian school. They were stirred by the sight of social wrongs, and earnestly desirous of succouring the workers who were groaning under the burden of the capitalistic *régime*. But they made no endeavour to understand social problems. Their theories were spun out of

their own heads instead of being based upon experience, and they had no concrete programme of reform.

Later there arose the Scientific school of Socialism, of which the first exponent was Karl Marx. Marx taught that mere benevolence and goodwill are not enough. What is needed is a systematic study of the facts of social development, leading to the discovery of social laws upon which theories of reform may be based. So Marx devoted his life to the carrying out of a systematic inquiry into the economic causes of social problems and the facts of social evolution. For some twenty or thirty years he laboured in the British Museum, collecting his materials and amassing facts. The final result of his labour was a theory of Socialism which has permanently influenced thought about social subjects in many European countries and has led to more than one revolution.

The remainder of this lecture is occupied with a criticism of Marx's theory. Sun first of all objects to the Marxian thesis that 'matter is the centre of history,' by which he appears to mean that the material basis of life is the root of social problems. Sun would substitute the proposition that 'the people's livelihood is the centre of history,' which he says, has been the doctrine of the Kuomintang for more than twenty years. Now, if by 'livelihood' Sun means 'physical life,' his statement does not appear to be different in meaning from Marx's. If, on the other hand, he means to include moral and spiritual life, he certainly scores a point against Marx's materialism. But he does not say so clearly.

Dr. Sun proceeds to demolish the Marxian doctrine of the class war. He points out how many social improvements, which Marx had declared could only be brought about after a bitter struggle between capital and labour, have actually been achieved by peaceful legislation. He mentions, among other steps towards social progress in the West, the advent of universal education, the improvements of sanitation, the amelioration of labour conditions, the nationalisation of public services (especially in Germany), direct taxation upon income, and the growth (in England) of co-operative societies. All these benefits, according to Marx, could be achieved only as the result of an internecine class struggle in which the workers would rise up and overthrow the tyrant capitalists. Sun points out that they have come about in the West as the fruit, not of revolution, but of evolution. The interests of capital and labour are really identical; for increased production leads to increase of wealth, and should cause higher wages and better conditions of labour. The class war is not a means of progress, but a disease of society. In all this we may congratulate Sun that he has not been led astray, as on other questions, by his friends the Bolsheviks.

Further criticism is directed against Marx's assumption that the surplus wealth of capital is all snatched from labour. This is manifestly not true. Take, for instance, the case of the cotton mills in Shanghai, Tientsin and Hankow. The owners' profits do not depend simply upon the labour of the mill-hands. The farmer who sowed the cotton, the labourers who transported it, the makers of farming implements and builders of railways, the people who buy and wear the manufactured cloth, all these contribute toward making the capitalists' enterprise possible. The fact is, all classes of society have their contribution to make towards the creation of wealth. The labourers alone cannot claim the credit of production. It thus appears that, in an industrial country, it is not the labourers only, but also the whole body of other classes of the useful and able, who are pitted against the capitalist. If the capitalists will only learn to co-operate with other classes the class war can be averted, and social progress and national prosperity will be assured.

Marx prophesied that the capitalists of a country would swallow up one another, until the country would contain only very wealthy capitalists and very poor labourers. Then the industrial revolution would commence, the workers would rise up and overthrow the capitalists, and the Socialistic State would be the result. But seventy years of history have proved Marx a false prophet. Instead of plotting revolutions, the Socialists have become a political party in most Western States. Communists sit in the German National Assembly, and England has actually had a Labour Cabinet. Reforms such as the eight hours day for workers, which Marx declared could never be brought about except by a revolution, have become the law of the land in Western countries. Marx also foretold that the capitalist would be abolished before the tradesman. But, on the contrary, the co-operative movement in England is leading to the extinction of the retail merchant, while the capitalist still holds his place. The tendency is for all business houses to become producers as well as sellers. Once again Marx is proved a false prophet.

So far we may justly applaud Sun as having successfully countered Marx on his own ground, in a manner which he no doubt learned in his student days when he was receiving a British education at British expense. But his bias reveals itself when he comes to prove the failure of another law of Marx in connexion with the Han-Yeh-Ping Company. This company is the largest coal and iron mining corporation in China. It is partly a State enterprise. It has ironworks at *Han*yang in Hupeh, iron mines at Ta*yeh* lower down the Yangtse, and collieries at *Ping*-Hsiang in Hunan; hence its name of Han-Yeh-Ping. The mines are particularly rich both in coal and iron, and the

company was started with plenty of capital behind it. According to Marx, the success of a business enterprise depends upon these two factors, productivity and capital. Yet the Han-Yeh-Ping Company has proved a failure. Sun's account of the matter is as follows.

The Han-Yeh-Ping Coal and Iron Corporation, formed before China's Revolution, was capitalised partly by the Chinese Government and partly by private firms. Its products of steel and iron were sold to America and to Australia before the European War; but since the war they have been bought by Japan. Meanwhile, China buys nearly all her steel from America. Now America produces 40,000,000 tons of steel per annum, and 40,000,000 or 50,000,000 tons of iron; while the Han-Yeh-Ping Company produces only 200,000 tons of iron, and even less of steel. Yet China exports the whole of her annual output, and has to go to foreign markets to buy steel for her own use. The reason for this is that the Hanyang Ironworks have no blast furnaces to produce the highly refined steel required for China's purposes. What China needs is hard steel for construction work, for arms, and for tools. The Han-Yeh-Ping Company only produces steel rails and cast iron, which are not wanted in China. America is willing to buy these products, because they are cheap. Hence the reason for the failure of the Han-Yeh-Ping Company is that there is no demand for its products in the home market, so that it is obliged to sell them cheaply in foreign markets. This gives the lie to Marx's theory, that productivity and capital alone are sufficient to ensure the success of industry. A demand in the home markets is also essential.

Now the above argument is pure nonsense, and Dr. Sun must have been perfectly well aware of the fact. The reason for the failure of the Han-Yeh-Ping Company is precisely the one which has caused the failure of every public enterprise in China since the Revolution. The cause is not in economic laws. It lies in the dishonesty and incapacity of the officials. Suppose, for instance, that some new engineering scheme is to be started in China under State patronage. It may be taken for granted that the technical experts and the managers of the works will be appointed, not because of their rectitude and ability, but through private influence. Next, everyone employed in the enterprise, from the chief engineer down to the clerks in the office, will owe his position either to bribery or to favouritism. Consequently everyone connected with the scheme will be chiefly concerned, not for the success of the business, but for his own private enrichment. Peculation or 'squeeze' will be the order of the day. Money which ought to be used for the upkeep or purchase of machinery will find its way into private pockets. Workmen will be robbed

of their wages in order that office clerks may waste their time in gambling and opium smoking. The dividends which ought to find their way into the pockets of investors will be squandered by company directors in feasting and extravagance. Presently the company will be on the verge of bankruptcy. In order to stave off the failure more capital will have to be borrowed, usually from abroad. By this means the financiers (or perhaps the Government) of some foreign country come to possess a controlling interest in the company. Foreign directors will then of necessity be appointed in order to control the finance, and foreign overseers in order to secure efficiency of working. So the enterprise finds itself dominated by foreign capital and direction, and the Chinese set up the howl that the foreigners are robbing them of their industries and encroaching upon China's sovereign rights.

The above, or something like it, forms the true story of the failure of the Han-Yeh-Ping Company. Only a few years after its inception this company was faced with the necessity of borrowing fresh capital. Within the space of a few more years the company was indebted to Japan to the extent of many millions of dollars. Japanese engineers were in charge of the Tayeh Iron Mines. The Japanese Government obtained practical control of the enterprise, and by stipulation the ore from the Tayeh mines, instead of being taken up the Yangtse to Hanyang, was being carried to Japan. Fourteen specially constructed Japanese steamers were plying between Tayeh and Yokohama engaged in the transport of this ore, while the ironworks in Hanyang were gradually closing down owing to the lack of the raw material, and hundreds of Chinese workmen were thrown out of employment. All this is carefully ignored by Sun when he attempts to use the circumstances of the Han-Yeh-Ping Company to refute the doctrine of Marx.

In his second lecture Dr. Sun sets forth the programme of the Kuomintang for the remedying of social conditions in China. This programme is not the mere adoption of any Western form of Socialism. Still less is it Marxism. Marxism is an admitted failure in Russia, where its principles have been most fully carried out. Politically it has been a success; but it has failed to solve Russia's economic problems. Its advocates claim that the failure of Marxism in Russia has been due to the country's backwardness in industrial development. They declare that the principles of Marxism are still applicable to countries like England and America, which have reached a far higher stage in economic organisation. In these countries the more moderate Socialists are being driven to despair by the determined opposition of capital to any programme of reform. It may be that, in Western

countries, this moderate party will be driven to join hands with the revolutionary type of Socialists, and to adopt more violent methods, leading to the class war foretold by Marx. Sun seems rather to go back here from what he has said in the previous lecture.

So far as regards China, the Kuomintang is committed to two principles—namely, equal rights in the land and the limitation of capital. These two principles practically amount to 'Communism'; in fact, the aim of the 'People's Livelihood' is identical with the aim of Communism. Both seek to relieve the sufferings of the poor and to free the depressed classes. Their difference will be found to lie in the methods proposed for accomplishing this aim; and this difference in method depends upon the difference in social conditions between the people of China and of Western countries.

In the first place, China has no wealthy class. The majority of her people are poor, and even those who are comparatively wealthy would count as poor men beside a Western capitalist. The social division of China is not into rich and poor, but into less poor and more poor. Second, the land question has not yet become acute in China. The class of wealthy landowners does not yet exist, but it is a nation of small landowners. The big landlord is a relic of the feudal period, which is still extant in Europe, but was abolished in China 2000 years ago at the fall of the Ch'ing Dynasty.

Nevertheless, the land question is beginning to appear in China, owing to the enormous increase in land values in the neighbourhood of foreign settlements. For instance, the value of land in the neighbourhood of Shanghai and of Canton has increased ten thousandfold in the past sixty years. Sun tells the story of a Cantonese who, in a fit of drunkenness, entered an auction mart and bought a piece of land for $300. The next morning he had forgotten the transaction, and when the deed of sale was brought to him, he was forced to ruin himself in order to raise the money. But in ten years' time the value of the property had increased to such an extent that this drunkard found himself a millionaire, the richest man in Kwangtung.

Now this method of acquiring huge wealth is manifestly unfair. The landowner has never schemed or toiled for his gain, as the merchant and capitalist are bound to do. The value of the land is increased by the fact of other people coming to live and carry on business in the neighbourhood. The increase of wealth is produced by the community, and not the individual; consequently it ought to belong to the community. In order to remedy this evil Dr. Sun proposes a tax of 1 per cent. upon all land. The value of the land is to be declared by the owner himself, and the

State is to have the option of purchase. By this means the landowner will be compelled to quote a fair price for his property: for if he quotes too high he will be taxed proportionately; if he quotes too low the State may demand to purchase his land at his own price. After this Sun would confiscate to the State any subsequent increase in value. Thus the profits derived from social progress and commercial enterprise will be reaped by the community instead of by private individuals. For the revenue thus collected by the State will enable it to dispense with all other forms of taxation. There will be no rates for water and electricity, and no levies to pay for repairing of roads and policing. This settlement of the land question will solve one-half of the problem of 'The People's Livelihood.' It should be added, however, that improvements made by the landowner himself will be exempt from taxation. Such improvements may consist in buildings, trees, embankments, drains.

It is noteworthy that, in outlining the above proposals, Dr. Sun does not condescend to mention the name of Henry George, just as in the preceding lecture he ascribes to German initiation reforms which are usually associated with the name of Robert Owen. It seems to be his set policy to ignore, as far as possible, all contributions which British Socialists have made towards the solution of these problems. But he is not ashamed to pluck the fruit, even when he despises the tree.

The difference between the method proposed above and the method of Communism is clear. Communism would advocate the wholesale confiscation and redistribution of property. The principle of 'People's Livelihood' merely introduces the land tax, and forbids further inflation of land values. This is all that is necessary in China, where the tide of modern economic conditions has only just begun to flow in from Europe. Nor is it necessary in China to lay any further tax upon capital. For the Chinese capitalists are few in number and small in resources, and therefore they need to be encouraged rather than checked. China requires railroads, canals, mines and machinery for the development of her resources. The State ought to undertake such enterprises, but it can do so only by enlisting private capital. But since the national wealth is small, it will be necessary also to borrow from foreign countries. China must have means of communication, factories and mines. For these she will be dependent in the first place upon foreign capital and foreign exports. If these enterprises are conducted by the State, the common people will benefit. This is the Communist policy. It is also the policy of 'The People's Livelihood.' The class war, which has been rendered inevitable in the highly industrialised Western countries, may thus be averted in China. Community of blood, com-

munity of power, community of gain—these are the three aims of the ' Three People's Principles.'

Having dealt with the land question in lecture 2, Dr. Sun devotes lectures 3 and 4 to the food problem and the clothing problem. The solution of the land question will carry with it the solution of one-half of the problem of ' The People's Livelihood.' But the problem of feeding China's huge population is the biggest question before China's reformers. How important this problem of food is to any country was demonstrated during the Great War, when Germany owed her downfall entirely to food shortage. Germany was superior to the Allies in arms, in strategy, and in all inventions of war. She was victorious in the field. Her collapse was due to the blockade which deprived her people of food.

It is essential to security that a country should be self-supporting. Yet there are few countries in the world to-day which realise this ideal. England, for instance, only grows enough grain to support her population for three months in the year. Japan could support her own population for eleven months, Germany for ten. China also is dependent upon imported food. The province of Kwangtung alone imports $70,000,000 worth of foodstuffs annually. Kwangtung would suffer from famine if the imports of rice were stopped for one month. Now France, with a population of 40,000,000, is self-supporting. China has ten times the population of France, but she has twenty times the area. Consequently China ought to be able to support twice her present population, or 800,000,000 people. Yet in China more than 10,000,000 people starve to death in each ordinary year, and more than this number in years of flood and famine. China's total population is generally reckoned to be about 400,000,000. But a recent estimate, made by a reliable foreign authority, has placed it at only 310,000,000. Therefore China has lost 90,000,000 of population in the last ten years. The main cause of this diminution is the backward state of agriculture. But a second cause is the economic oppression of the foreign nations.

How are the foreigners robbing China of her food supplies? By exporting the food which ought to support her own people. China's annual loss through foreign trade is $1,200,000,000. Part of this goes in silver, part in foodstuffs. America, for instance, takes 1,000,000,000 eggs. This is quite apart from the whites of egg, of which large quantities are exported for chemical purposes. Japan and England also import huge quantities of eggs from China. In Nanking a big tinning factory prepares large supplies of Chinese pork, chicken and game for export to England. From the north are exported wheat, barley and beans. Three years ago (1921), while Chinese peasants, within reach of railway

transport, were starving to death, quantities of grain and beans were being sent abroad from the ports of Newchwang and Dairen. This kind of thing is going on all the time. China's people are being starved in order that the people of other nations may live.

Now we have above a good instance of the manner in which Dr. Sun juggles with figures and presents us with one side only of a case. He commences with a probably reliable modern estimate of China's present population. Against this he places for comparison a hypothetical round figure, which he arbitrarily assigns to a date of ten years ago. Conclusion: China's population has diminished by so many millions in the past decade. Having thus established the fact of a loss in population, Sun proceeds to inquire into its cause. He admits that the greatest cause is the crude development of agriculture in China at the present time. There are other contributory causes which he might have mentioned, but does not. Civil wars, bandits, floods, exorbitant taxation, all these have played their part in depressing the peasant classes of China during the ten years of which he speaks. The destruction of huge numbers of people by one or other of these causes has not been uncommon in Chinese history, either in ancient or modern times. For instance, the Taiping Rebellion (1853–64) is supposed to have been responsible for the extermination of 20,000,000 of people. The famine of 1877 in Shantung is said to have destroyed at least 9,000,000. But no, it is not Sun's purpose to lay the blame of China's trouble at any other door than that of the Westerner. It is the foreign merchant who has been robbing China's people of their food; it is the Western capitalist who has been exporting foodstuffs and battening upon the misery of Chinese peasants. What he forgets or ignores here is that there must be two parties to any business transaction. No country can force any kind of trade upon the merchants of another country. If the foreign merchant buys up part of China's necessary food supplies, it is the Chinese merchant who sells them and makes a large profit by doing so. Perhaps China's capitalist class is not nearly so small, nor so innocuous, as Sun has assumed in the previous lecture.

Having had one more fling at the foreigner, Dr. Sun returns to the much more vital question of agriculture. The development of agriculture, as he quite rightly insists, is China's most pressing need. Eight or nine tenths of her population are farmers. The way to encourage food production is to protect and stimulate the efforts of the farming class. First they should own the land which they cultivate. At present a great many of the small farmers are crippled by having to pay rent for their land. In Kwangtung it is reckoned that six-tenths of the farmer's produce goes to enrich the landowner, only four-tenths to

the cultivator of the soil. In passing we may say that it is questionable if Dr. Sun's statement is correct regarding China as a whole. In most of the inland provinces, at any rate, the small farmers do own their own land, which is handed down from generation to generation. But if Dr. Sun is correct regarding the position in Kwangtung, then the land question must be more acute than he has admitted in the previous lecture.

There are seven ways in which agriculture needs to be developed: (1) First, in the use of machinery and modern appliances for all farming operations. (2) Second, in the application of manures to various kinds of soil. (3) Third, in teaching the Chinese farmer to preserve the fertility of the soil by a proper rotation of crops. (4) Fourth, by taking means to exterminate insect pests. (5) Fifth, by introducing methods of preserving foodstuffs for transport. (6) Sixth, by extending facilities of transport. (7) Seventh, by construction of dykes to prevent floods, irrigation systems to avoid drought, afforestation to protect the soil, and other means of preventing natural calamities. In all these respects China is sadly behindhand, and the conservatism as well as the poverty of the Chinese agricultural classes has hitherto prevented them from adopting these new methods.

But, in addition to the above seven methods, there are other means required for promoting agriculture. For instance, America has trained specialists who visit China, Manchuria and Mongolia to search out new seeds or new methods of production. But the food problem has not been fully solved, even in America, the reason being that all production is in the hands of the capitalists, and fair methods of distribution are not considered. As a matter of fact, under a capitalist *régime* fair distribution is unattainable. Witness the case of India, where famines occur frequently, although India ranks as the third great exporting country of foodstuffs in the world. British merchants are simply starving India in order to feed Europe.

Here we may remark how Sun has wandered from his subject in order to have one more smack at the British Empire. The above statement is absolutely untrue; yet it is probably believed throughout the length and breadth of China. Are such false slanders bred of ignorance or of malice, or of both?

To return to Sun: the object of the principle of 'The People's Livelihood' is to break the power of capitalism. If this principle, which is practically Communism, is brought into play, then there will be no temptation to one class of the people to acquire wealth by withholding food from other classes. In the Communist State the motive of the food producer will be, not to acquire wealth, but to feed the people. The way to effect this is o insist that all surplus food supplies shall be stored and no

export allowed to foreign countries until after a period of three years, and then only in case of plenty. When food is thus made plentiful in the country it will automatically become cheap. The capitalist will be deprived of the power to get rich by starving the people, as the foreign merchants are now doing to China's population.

According to modern economic theory, the three chief necessities of life are food, clothing, and housing. To these we ought to add a fourth, namely, means of travel. In order to secure the 'People's Livelihood' these four necessities ought to be made cheap and accessible to all. For this end the State ought to control the means of supply instead of leaving these matters to private enterprise. If the Government of a country undertakes this duty, all classes of the people ought to respond by shouldering their particular responsibilities. Farmers must till their land, workers must manufacture tools, merchants must carry on their business, scholars must use their ability—all for the common good. This is the ideal of the Communist State, and is also the principle of the 'People's Livelihood' preached by the Kuomintang.

The fourth and last lecture discusses the problem of clothing the people. Unlike the food problem, this is a question which concerns neither animals nor savages, but only civilised man. Primitive men were covered with hair, just as animals have fur and birds have feathers. In the fisherman-hunter stage of development men began to clothe themselves with the skins of beasts. When they took to wearing clothes the hair upon their bodies began gradually to disappear. The more civilised men became, the smoother their skins. Chinese have less hair upon their bodies than Europeans, because they have been civilised for a longer period.

Now the materials of life may be classed as necessities, comforts and luxuries. Taste in both food and clothing has passed through these three stages. The question of the 'People's Livelihood' is only concerned with necessities. These two problems must be solved so far as necessities are concerned, or China's population will continue to diminish. We must first discuss the source of the materials from which clothes are made. These are four in number—silk, hemp, cotton, and furs. Two are supplied by the animal kingdom, and two by the vegetable.

The breeding of silkworms and the use of silk for clothing were known in China long ago, when the inhabitants of Europe were still naked hairy savages. But during the past 200 or 300 years Western civilisation has made great progress, and they have learned to use silk, not only as a necessary article of clothing, but also as a luxury. There are many Chinese who cannot afford to

wear silk; yet most of China's annual production of silk is exported to foreign countries, where it is a luxury. When China first commenced to trade with the foreign nations silk was her greatest article of export, and her total exports exceeded her imports in value. Another chief article of export was tea. Before the foreigners had tea they drank wine. Now they have grown accustomed to the use of tea, and it has become a necessity to them. In those days there were not many foreign products for which China had any use, and so for several decades she held her own in trade. But now the foreigners have stolen China's silk trade by importing and breeding the silkworm for themselves. China's imports have simultaneously increased, and at present her imports far exceed her exports. France and Italy now produce silk by improved methods. Japan has copied them. There is now no demand for China's silk in the international markets. Her trade in tea has also been partly taken from her by Indian production. Consequently China is made to pay an annual tribute to the foreign Powers of something like $500,000,000. Much of this loss is due to the fact that China has failed to adopt modern scientific methods. The foreign improvement in the quality of silks was due to Pasteur's discoveries. There are only two places in China where scientific methods for improving the culture of silkworms are being studied. Until China learns to apply modern methods to her silk industry she will be unable to compete with foreign silks in the world's markets. At present, wealthy Chinese wear mostly silks imported from abroad. China is being robbed of her wealth because of her own backwardness.

We may notice in passing how Dr. Sun, by arguing both ways, deprives his argument of much of its force. Are the foreigners buying China's silk? Then her own people are being deprived of its use. Are China's silk manufacturers being driven by competition from the world's markets? Then the foreign Powers are taking advantage of China's backwardness to deprive her of her trade. It is this querulous spirit, determined to find a grievance, and moreover to lay that grievance at the foreigner's door, that is causing much of the present trouble in China.

Turn next to the two vegetable products. China was the first producer of hemp. But she has never progressed beyond her primitive methods of cultivation, and consequently her trade in hemp also has been filched from her. Cotton came originally from India. America is now the first cotton-growing country in the world, India the second, China the third. Foreign cotton cloths and calico are both superior in quality to and also cheaper than China's home products. Therefore Chinese prefer to wear cotton stuffs imported from abroad, and Chinese weavers use foreign-spun cotton yarn. China is forced to export the bulk of

her raw cotton, because she has hardly any mills for spinning and weaving. Most of it goes to Japan, the rest to Europe and America. The manufactured product is sent back and sold to China. This is not because Japan has more workers, nor because Japanese work for lower wages than Chinese It is simply because of China's backwardness in industrial methods. Thus the foreigners make profit out of China's weakness. As we have already seen, the total amount of China's annual loss to the foreign Powers lies between $1,200,000,000 and $1,500,000,000. Most of this is in excess of imports over exports. According to the last two or three years' trade returns, this excess is more than Hk. Tls. 300,000,000, which is equivalent to $500,000,000. The biggest imports are in linen and cotton yarn, which are responsible for Hk. Tls. 200,000,000, or $300,000,000. This is equivalent to a tribute of one dollar per head of the population. Hence China's people are dependent upon foreign countries for their clothing.

During the war no cotton or linen from Europe and America came to China. She had to turn to Japan for her supplies. But Japan was engaged in supplying the Allies with all kinds of materials, and had little to spare for China. Then Chinese merchants took the occasion to set up cotton mills and spin and weave their own cotton. In Shanghai many mills were opened, and every dollar of capital produced $3 or $4 of return. In this way a number of Chinese became ' cotton kings.' But in the end a lot of these mills failed, or had to close down in order to avoid failure, and their owners were reduced to poverty again. For as soon as the war was finished foreign cloth and yarns began to come to China once more, and the Chinese manufacturers were unable to compete against them.

Now here, says Sun, is another puzzle. The Chinese cotton manufacturers had their raw materials ready to hand, their mills were equipped with the best modern machinery, and Chinese factory hands can exist on very low wages. The foreign manufacturers, on the other hand, had first to export their raw materials from China and then to import them again in the form of finished goods ; their mills had no better equipment ; foreign factory hands require much higher wages. How was it that the foreign capitalists were able to beat the Chinese in their own home markets ?

The answer to the question lies, not in economic, but in political causes. It is the unfair tariff conditions imposed upon China by treaties with the foreign Powers that make it impossible for China's industries to succeed against foreign competition. If China were allowed to impose protective duties upon foreign manufactures, she could easily hold her own. But China's import duties are limited by treaty to a levy of 5 per cent. *ad valorem ;* on transit in

the interior foreign goods must not pay more than 2½ per cent., making a total of 7½ per cent. The Chinese-made cloth has to pay the same 5 per cent. before leaving Shanghai; but in the interior it is taxed at every likin station, and pays altogether several times the duty which is levied upon the foreign goods. Consequently Chinese cloth is dearer to buy than foreign. Other countries can safeguard their home manufactures by means of a protective tariff upon foreign articles. But China is not allowed to do this. The unequal treaties bind her hand and foot, cripple her trade, and ruin her capitalists.

In order to solve the problem of 'The People's Livelihood' it is necessary first of all to free China from political oppression and to recover her sovereign rights. The other nations not only possess economic advantages because of their machinery and their wealthy capitalists, but in addition they possess political advantages based upon the unequal treaties. America levies a duty of 50 per cent. or even 100 per cent. upon English goods. Chinese goods entering Japan have to pay a 30 per cent. duty. Germany, by means of a protective tariff, has developed in a few decades from being a largely agricultural nation to one of the first industrial nations of the world. All these countries have established their home industries by means of protective tariffs. But China is not allowed to do so. The unequal treaties deprive her of her freedom; and her own Government is powerless to save her.

With regard to furs, these can be found in China in abundance; but because she has no home manufactures in this line, they are exported. Some of them are reimported and sold to Chinese, bringing large profits to the foreign makers of fur clothing. There is no reason why Chinese should not make up their own furs for winter wear and also export them abroad.

Clothes are necessary—(1) to protect the body from cold, (2) for appearance' sake, and (3) to distinguish classes. The Government should establish model tailoring departments in order to provide the people with suitable clothing. The people must also shoulder their responsibility towards the Government. Idleness ought to be punished by forced labour. Thus all the people will take their proper share in production, and the problem of 'People's Livelihood' will be solved.

With these rather abrupt remarks Dr. Sun closes the San Ming Chu I.

IVAN D. ROSS.

## ON LAWS GOVERNING THE USE OF ARMED FORCE

In a *Study of War* [1] an attempt has been made to set forth a theory of war different in some respects from those hitherto put forward by other writers. Herodotus, Thucydides, Xenophon, Cæsar, and other classical authors wrote detailed accounts of the wars waged in their own days and have been followed by others in later times, but their works supply no more than the raw materials out of which a theory or philosophy of war can be evolved.

Further, the German Clausewitz, in the early part of the last century, wrote *On War*, but his book was regarded by himself as only 'a collection of materials from which it is intended to construct a theory of war.' The book as it stands is no more than a disconnected series of abstract arguments, through which the reader has to find his way as best he can. Even the opening chapter, which the author considered to be complete, leaves the reader uncertain as to the relations between the political object, the will, and the armed force. Further, the author only discusses war on land and makes no reference to war at sea. Seeing that the two are interrelated, it is evident that he did not collect all necessary materials out of which to evolve the theory he sought.

Again, Marshal Foch wrote a book on the *Principles of War*, but he deals only with the technique on land, makes no reference to war at sea, and pays little attention to the political object. Evidently he does not look for any general laws.

Further, Admiral Mahan in his various works dwells upon principles, but does not define them with any exactness. His books contain a mass of detail—the material out of which a theory can be evolved. Nowhere does he enunciate any such theory standing out four-square with logical simplicity as a leading mark in all wars and applicable equally at sea or on land, irrespective of the weapons and means of locomotion in use.

Each of the above-mentioned books tends to confuse thought, since no attempt is made to select from the mass of detail the really relevant facts and to show the relations between them. The reader has great difficulty in 'seeing the wood for the trees.'

[1] By the author (2nd edition: Constable).

This is specially noticeable in Clausewitz and Mahan—less so in Thucydides, who is more illuminating than any modern writer.

It was out of a mental atmosphere thus fostered that I set out in search of the meaning of war, its cause, its object, and its aim. The methods of previous writers had given no definite lead. They had collected facts, but had not drawn from them any satisfying logical theory. It was determined, following the advice of Bacon and the practice of Darwin, to examine the facts thus collected and if possible to unveil any general laws which govern them.

The wars of the ancient Greeks are illuminating because the problems are comparatively simple, the scale of the operations is small, and the theatre of war is limited. Further, the whole drama is seen complete with all its antecedents and consequences. These wars were analysed by me, and the results were set out in *War at Sea*,[3] published in the year 1919. The pages of Herodotus, Thucydides, and Xenophon were found to unfold general laws, which were confirmed by the results of later wars when these were analysed in their turn.

In the first place was noted each side starting, consciously or unconsciously, in every war with an object, which may be called Political, and with an aim, which may be called Military, to use the armed force to attain the political object. In the Græco-Persian war of the fifth century B.C. two antagonistic political systems based on different ideals were in collision, brought about by mutual fear of being undermined. The Persian autocratic ideal, under which the individual will was held subservient and enslaved, was opposed to the Greek self-governing ideal, under which the individual will was held free. The security of each system was reciprocally menaced. The Greek victory assured the security of Hellas and its political system for the time being, but the campaigns of Alexander the Great showed that the security of the Persian political system had been also at stake. Analyses of the great French war at the end of the eighteenth century and of other wars taught the same lesson, but the political object varied and was not always the security of a political system. The conclusion was reached that the reciprocal political object is security for every questioned right, every threatened interest, and the State itself, including its political system and territory.

That war culminates in battle, and that the destruction of the armed force is the decisive act, was evident from the double decision by sea and land at Salamis and Platæa in ancient and at Trafalgar and Waterloo in modern times, and from its single equivalents at Ægospotami and Jena. In each case the political object was attained by destroying the enemy armed force in

[3] Blackwood.

battle. But that is not always possible, in which case the next best thing to do is to neutralise its action—either by the threat of battle, as did the Greeks in the Salamis campaign and the English in the case of the Armada; or by evading battle, as was the plan of Napoleon during the campaign of Trafalgar; or by postponing battle to await a more favourable opportunity, as did the Greeks at Samos and Miletus during the Peloponnesian war, as did Ruijter during the third Dutch war, and as did both sides at different times on the Western Front during the late war, by awaiting attack. Hence the primary military aim of each side is battle, or the threat of battle, with a view to destroy, or if that is not possible to neutralise, the enemy armed force while sparing its own.

During the interval which elapses before the double decision or the single equivalent, opportunity may be taken to weaken the enemy armed force and to strengthen the position by impairing his material and moral resources and by increasing our own. This can be done, on land, by overrunning enemy territory, as, for instance, Attica by the Spartan army in ancient and Europe by the French army in modern times; at sea, by stopping enemy trade and by preventing our own trade being stopped, as was done by Athens in ancient and by England in modern times. These are secondary military aims, because neither can territory be overrun nor can seaborne trade be stopped until the primary military aims have been more or less completely achieved—that is to say, until the enemy armed force has been more or less completely put out of action. This was seen in the late war when the German armies were driven out of France and their submarine campaign failed as soon as the Allied armies and navies, not having been put out of action, were properly used.

It is very important to realise the difference between the primary and secondary military aims. The one is directed against armed forces, the other against resources. The former is more important than the latter. When both aims can be prosecuted, he secondary prepares victory, the primary achieves it. But when the principal armed force is a navy on the one side and an army on the other, the two cannot come into direct collision. Then, as the Peloponnesian war showed at the Peace of Nicias, and the great French war confirmed at the Peace of Amiens, the achievement of secondary military aims leads only to compromise and an armed truce, whereas the achievement of primary military aims at Ægospotami and Waterloo resulted in a military decision and peace.

Furthermore, every armed force is controlled by a directing will which is intimately bound up and falls with it. Therefore the whole military aim of each side is to destroy, or if that is not possible to neutralise and to weaken, the enemy armed force,

including his directing will, while sparing and strengthening its own. In this definition attention is concentrated on the armed force, which was the practice both of Nelson and of Napoleon, Was it not equally so of Themistocles?

The political object and the military aim having been defined it remains to state the relations between them which are covered by the word *Strategy*. As hitherto understood, strategy deals with the movements of armed forces into positions to achieve the military aim. This is a purely military definition. In order to bring the political object into the picture we must understand that strategy attains the political object through the complete, partial, or threatened achievement of the military aim under the existing political, economic, and military conditions. The extended meaning of strategy follows directly from our original premise, and extends it to meet the varying importance of the political objects or interests at issue, and the varying political, economic, and military influences at work on the controlling minds and public opinion. The military effort is greater when the national existence is at stake than when some minor interest is threatened. In the one a complete overthrow of the enemy armed force may be required, in the other a mere threat may suffice. The above influences react on each other and tend to strengthen or weaken the national effort according as they pull in the same or in opposite directions. The political influence depends mainly upon the political objects of the war. The economic influence is manifested in the efforts required to provide resources to carry on the war. The military influence finds expression in armed force. Each influence possesses a mental, a moral, and a physical side, as has been so well explained by Colonel J. F. C. Fuller.[3]

By introducing the common term 'armed force' the word 'strategy,' as defined, is made applicable to all three services, since the political object and the military aim are the same for each, and battle, like armed force, is a common term, although the sea–air battle, the land–air battle, and the air battle differ tactically. Thus it covers a common doctrine and a general law governing the use of armed force, which is that, when armed force is used instead of moral suasion, security is reached through battle or the threat of battle—that is to say, by destroying, or if that is not possible by neutralising and by weakening, the enemy armed force.

The reader will note that the clearly defined terms 'strategy,' 'political object,' and 'military aim' have been substituted for those taught at the schools and much used—namely, 'grand strategy,' 'major strategy,' and 'minor strategy,' which tend to

[3] *The Foundations of the Science of War.*

confuse thought, since they bear no indication of their different meanings. How can it be supposed that the ordinary man will distinguish between these different strategies? He cannot be expected to see by intuition that the addition of the word 'major' covers a political and of the word 'minor' a military interpretation.

Other ambiguous words and phrases tend to confuse thought. Consider the statement often made that 'war is a contest between two wills and the aim of each side is to enforce his will on his opponent.' Is not this a half-truth, seeing that no reference is made either to the political object or to the armed force? The picture of war is incomplete, since our general law declares that the political object, the will, and the armed force are interrelated and react on each other. The enemy will and armed force are together destroyed, neutralised, or weakened when the military aim is completely or partially achieved. The extent of the overthrow required depends upon the political object, or the magnitude of the interest to be made secure. The conquering will may demand what its armed force can make secure, but cannot with impunity demand more than its own security requires. Any demand beyond that prepares future wars and will endanger its own future security, as was seen when Germany annexed Alsace-Lorraine in the year 1871.

Again, security governs the size of the armed force required in time of peace. This depends not only upon the strength of the armed force which threatens, but also upon the distribution of the interests to be made secure. Security is reached by neutralising the enemy armed force, which is done by watching it. This is possible in the case of a single concentrated massed force, but not of many widely scattered detachments, as privateering at sea and guerrilla warfare on land have proved. The watching force has to be transferred from the point of departure to the destination, that is to say, to the convoy. Hence, besides the massed fleets which neutralise each other, the nation with a large seaborne trade has for its security to provide and to distribute an armed force varying in numbers with the size and ubiquity of its seaborne trade. This additional force gives no more than security and does not disturb the balance between the massed fleets. Further, it threatens no one, seeing that, as has been shown, the need for a double decision or its equivalent is a proof that a navy, however strong, is of itself not a menace to a continental Power, but is a security against war, since it can cut off seaborne supplies from any Power which disturbs the peace. This is the justification for the larger cruiser force claimed by Great Britain.

Again, consider the statement that 'the purpose of an army is to gain command of the enemy land.' This is very near to the

dangerous theory that territory, and not armed force, is the military aim, which led to the Anglo-Austrian defeat in the Low Countries in 1793–4 at the hands of Carnot and was shown to be a fallacy by Buonaparte. The military aim of an army is to destroy, or to neutralise, the enemy armed force and to weaken that force by impairing enemy resources, which last is done by overrunning his territory. It is the resources which are the aim, and not the land, except positions of strategic importance. To overthrow the enemy armed force is the military aim, and not necessarily to occupy land, which may or may not accompany it.

The phrase 'command of the sea' is quite as misleading. Both mean the achievement of the military aim—that is, the attainment of the political object, security. Both conceal the attacks on the armed force and on resources, through which security is attained. In consequence it has been held that an army acts only against armed forces with purely military results, a navy only against resources with purely economic results, and an aery only against the will with moral results. The underlying idea is that the army can win a war by destroying the enemy army, the navy by stopping his oversea resources, and the aery by frightening his civil population.

These are the ideals of the directing minds which existed in armies and navies before the late war and have been developed in the aery since the war. They are the result of thinking in water-tight compartments. Not having any accepted common theory of war, the importance was not realised of weakening the enemy army by stopping his oversea supplies and of strengthening our own by new and improved weapons and equipment, although M. Bloch had foretold the need and Xenophon had indicated the method to follow. Equally, men failed to understand that it was important to destroy the enemy navy when opportunity offered, to provide a new weapon to deal with the submarine, and to put in practice the principle underlying the convoy system that an armed ship should be placed alongside the convoy as being the destination of the submarine, and therefore the most likely place to find her. More extraordinary still was the intention to divert from attacking the German army and its supplies an aerial force to bomb the civil population of Berlin.

To what were these failures due? Did they not arise from a habit of mind which declines to think out first principles? Was not this the reason why no logical theory of war existed? This failure to think out principles left the professional schools without any guidance. Unconsciously it may be, the Army became tinged with the thought of the German Clausewitz, and the Navy with that of the American Mahan. It is difficult to say whether the German or the American was the more misleading. Clause-

witz, with a purely continental outlook, pushed the primary military aim without sufficient regard to the secondary. The result was seen in the bloody assaults on the Western Front during the late war. Mahan pressed forward the political object at the expense of the military aim, with the result that they were not seen in their proper relation, but he did not clearly explain the relation between the two military aims. The result was that a school arose who exalt the secondary aim—to weaken the enemy armed force at the expense of the primary aim, to destroy it. Neither Clausewitz nor Mahan thought in terms of a logical theory of war, which was the cause of their undoing.

Again, too much attention seems to have been paid to the details of particular wars which are usually misleading, since future wars will always differ from those of the past, and the future, not the past, is the interest of the present. The real use of naval and military history is to supply the material out of which can be evolved a theory governing the use of armed force and applicable in every war. Apart from the necessary professional technique, which is more or less mechanical, the schools should teach this theory in order to ensure that the student understands first principles. But as we live in a changing world they must repeatedly ask themselves, Is our teaching correct? The student should keep an open mind and not accept any statement without convincing himself of its truth. With correct first principles firmly implanted in his mind he will be in a position to give his native genius full scope to deal with every question on its merits. When studying any particular campaign he will know what to look for; he will be able to analyse correctly the strategies of the opposing sides, to account for the failures on the one side and for the successes on the other side. When reading history he will be able to judge whether the author understands what he writes about.

The reader will realise the difficulties under which the instructors in the professional colleges have had to work in the past. They were able to teach the technical side of the military art, but the important philosophical side was necessarily outside their ken, since they were not supplied with any logical theory of war and had no time to evolve one.

Finally, it may be suggested that the statement often made that war is not an exact science seems to require some qualification, since the laws governing the use of armed force can be stated with as much scientific accuracy as those governing any other art. It is the application of those laws which varies so much and offers so many difficulties. Trouble comes to him who transgresses those laws.

REGINALD CUSTANCE.

# THE CHANGING CONDITIONS OF WAR

THE idea of war, when it faces us in a concrete and not merely an abstract form, at once suggests to us the idea of policy, which means the line of conduct to be adopted, or the principles upon which action is to be based. What are these principles? They are well known; but how seldom are they connected with the word 'policy.'

The first of these principles, the maintenance of the direction decided on, presupposes that we have in our minds a definite aim. When we apply this principle in its most general form, we can say without fear of contradiction that the object of the fighting forces is to secure law and order during peace-time, and to impose our will upon an enemy during war-time. These general ideas, or aims, are obvious to all, but what is less obvious is the carrying of them out when policy is to be converted into action. Here we are called upon to answer a whole host of complex questions, for action entails using military force according to conditions, many of which are in nature speculative. Those who set out to fashion a war policy must, consequently, understand the powers of the fighting forces, and also, as far as it is possible, they must grasp the probable nature of the conditions in which the fighting forces will be called upon to expend their powers. When once the nature of conditions is gauged, the action required can be deduced. And once this action is deduced, the policy-makers can turn to the fighting forces, and, knowing what their powers are, can, by equating these powers with the action required, arrive at their strategical, tactical, and administrative limitations. Should they consider these limitations too great, then they can either modify the action proposed or the organisation of the fighting forces.

The main difficulty lies in conditions. What are the characteristics and influences of the conditions which face us to-day? Until this question is answered the foundations of policy must consist to a very large extent in guess work.

Since 1914 political conditions have completely changed, and so has the social outlook. The gross constructive materialism of the nineteenth century was badly broken by the war, and an ignorant and somewhat hysterical idealism was released. This

idealism, though outwardly directed against war—for mankind is sick of slaughter—is full of the fighting zeal of a new cult. In 1914 there were two great groups of antagonistic Powers in Europe, nations outside these groups being mere spectators of their quarrel. These two groups were urged into opposition through fear of each other; now this fear is gone, and with it the stability of Europe, for, the universal danger of a German hegemony having ceased to exist, all nations are free to snap, snarl, bite and lick as they like. Fear of the German navy consolidated the British Empire, and fear of the German army was the foundation of the Entente Cordiale. Fear having gone, the British Empire has changed, our relationship with France has changed, and the outlook of every other country has changed and become far more self-centred and material.

Whilst interminable squabbles occupy the nations, most of whom have been attempting to revive the epoch killed by the war, a new adversary has arisen, a foe whose hostility is directed not so much against the policy of any particular nation as against the social fabric of Western civilisation. This adversary is Russia, and for nine years she has been waging a truceless war against the rest of Europe.

To understand the Russian aim it is first necessary to accept the fact that ethically Russia is an Asiatic nation. Next it must be realised that the present social ferment was not originated by the war, though the war released it. Its origins are to be sought in the Industrial Revolution. Every country now has an enemy within its frontiers, a class of society which is opposed to materialism, to majority rule, and to gross numbers generally. The ideals of this class are yet vague, but they all tend to be antipathetic to democracy. Democratic government is in fact being steadily undermined, and already in half a dozen countries dictatorships have been established. The centre of gravity of all this turmoil is Russia. Her policy to-day is still the policy of Peter the Great—namely, imperialism. Checked on her western frontier, she is aiming at establishing a Russified Asiatic League of Nations. Meanwhile her ideals are percolating through and around international politics, and wherever she sees a chance of sapping national *moral* she opens her attack.

In 1914 we were confronted by a tangible foe, an enemy we could hit at, but to-day our antagonist is intangible, and to use military force against him is of little account. Political conditions have so completely changed, that though Russia is at war with us we are not at war with Russia. In 1914 the aim of military force was to secure law and order within the country, and to protect our frontiers from invasion. Now our enemy has discovered a system of war—namely, propaganda—which can

surmount all frontiers, and which, in spite of military force, can corrode the very vitals of national existence. Since 1918 military force has failed in Ireland, in Egypt, in India, and is likely to fail in China; because, though military force can terrify materialists, its terrors only stimulate idealists. With the one it is like pouring water on a fire until it is extinguished; with the other it is like pouring oil—the more poured on the greater is the conflagration. The simile may not be exact, but it is sufficiently true to illustrate the amazing political and social changes which are to-day influencing physical force.

Whilst Russia is waging this relentless war against Western civilisation, what do we see happening in other nations? The French army is steadily being transformed into a militia; the German army has been placed on a professional basis; our Army is yearly reduced in size; the size of our Navy is governed by a one-Power standard, and the League of Nations is deeply concerned in disarmament. Whilst in 1914 we were free to pick and choose our allies, to-day, by the Locarno Treaties, we are bound to take part in practically every European war of any size. The whole situation is, in fact, contradictory, for whilst Russia has established a deadly form of psychological warfare, the rest of Europe is wrangling over material things, and her statesmen are carrying on as if few changes had taken place in the last twelve years.

These changes in the political conditions which influence war must of necessity modify strategy. In 1914 our strategy was clean-cut—it was definitely based on command of the sea, which enabled us to secure ourselves at home, to protect our frontiers, and to assist in the maintenance of the balance of power in Europe. To-day, with the exception of Russia, no nation wants to go to war with us, and against Russian methods of war command of the sea is about as potent a weapon as a steam hammer against a wireless wave.

An European balance of power no longer exists, and, though every European nation is being attacked by a common foe, there are no signs of the establishment of a common front. In 1918 the idealists at Versailles hoped to replace the old diplomatic machinery by that of the League of Nations. The one had been concerned with balancing—and, very frequently, juggling with—power; the other was to substitute round-table conferences for secret negotiations, and defensive alliances were to be replaced by interdict. The ideal was noble, but the machinery whereby aspirations were to be rendered concrete was non-existent. Interdict, or excommunication, of a defaulting nation was impossible, unless the defaulter happened to be an insignificant and accessible Power. It was like attempting to control

the Christian Churches, not by a papacy, but by a committee the members of which were drawn from all sects in Christendom.

Whilst statesmen and idealists were wrangling, the direction of strategy was being shaped by an unconscious pressure and resistance of events. In Europe strategy is still crystallising around the problem of maintaining the artificial frontiers established after the war; in Asia an amorphous nationalism is breaking up nations by fermenting within them the alcohol of liberty. We see this distinctly in China and India, yet no man can as yet clearly see what the end will be.

Between Europe and Asia the eternal problem of communication continues, which means that, whatever nation is to control the strategy of a great war in the Old World theatre, power to command the seas is an essential. This command is still in British hands, but in a weakened form; for whilst before the war our object was to command near waters, the Atlantic Ocean and the North Sea, to-day our main naval problem is to control the Mediterranean and the southern portion of the Pacific Ocean, so that no Oriental Power can by sea strike at Australia, New Zealand, India, and South Africa. Strategy is urging Great Britain eastwards, and the result is the establishment of the Singapore base.

Whilst sea-power is forcing a reorientation, changes in land-power are doing the same. A principle of British strategy, as important as command of the sea, is that of the invulnerability of land frontiers, and the fact that the Empire from a defensive point of view possesses only one vulnerable land frontier is a sure proof of the importance of this principle. This frontier is the North-West Frontier of India.

From the middle of the last century onwards to 1914 the Russian menace to India rose and fell according to the temperature of international politics. Up to 1905 the menace was obvious, but the defeat of Russia in Manchuria, coupled with the rise of Germany as a great naval Power, tucked it up to sleep awhile. After the war it was said to have died in its bed, for the internal state of Russia prohibited a military invasion of India. This death was, however, illusory, since it was soon discovered that the wraith of insidious propaganda which emanated from the corpse could surmount all frontiers, and could attack the foundations of military power, namely, patriotism and civil *moral*.

To-day, as before the war, the defence of India embraces three problems—namely, the maintenance of internal security, frontier security, and the integrity of Afghanistan. In 1914 the first was subsidiary to the second and the third, which were interdependent. Then Afghanistan was definitely friendly, and the Government of

India autocratic. Now Afghanistan, if not openly hostile, is suspicious of our intentions, and the Government of India is amorphous. The result of this is that not only has our influence in Kabul declined, but weakness in our rule has had a repercussion in India. This has taken the form of a rising nationalism, and, as India is a continent of many nations, intercommunal strife has steadily grown. As long as this strife continues, our position as ruler is assured, for, in spite of sporadic non-co-operation and boycott, it renders impossible a strong concentration against us. But on our strategy it reacts, in that, as law and order must be maintained, its maintenance falls more and more on the British Army, whose primary object is the defence of the Frontier, and not police work in the interior, which by rights should fall on the Indian Army. In its turn the integrity of the Frontier largely influences internal security. For any disaster on the circumference would at once release subversive forces around the centre.

Our strategical problems, simple enough before the war, have to-day grown into a complex tangle. More and more are British soldiers called upon to act as policemen, yet daily is the Frontier calling for their assistance so that its problem may be solved before Russia can grow strong enough, or Afghanistan weak enough, to create a disaster. In order to solve this problem it is necessary to examine the foundations of our Frontier policy.

Until a few years ago our so-called control of the Frontier was by means of punitive expeditions, and it was radically faulty. The idea underlying it was to maintain a barbarous and roadless no-man's land in which an invader would become entangled. It was purely defensive, since this roadless area would equally impede us should events demand an advance into northern Afghanistan. The tribesmen who inhabit this area found it impossible to live on the land; consequently they had no choice save to raid or to starve, so they adopted the first. In retaliation we in our turn raided their villages and destroyed them as well as their crops and herds; this only rendered starvation more sure. This system continued until 1919, when the last Afghan War opened our eyes to its folly. A new policy then took shape: it was to replace obliteration by pacification, which could only be accomplished by occupation and civilisation, and both demanded the construction of roads. So far this new policy has proved so successful that, if it is progressively continued, within ten to twenty years the North-West Frontier is likely to become as peaceful as the Punjab.

This problem solved, we are next faced by that of Afghanistan. To-day, as before the war, the policy is to discourage the opening up of the country by roads and railways so that a Russian

advance may be impeded. But has Russia any intention of advancing in the tactical sense? Is not her policy one of disruption by fomenting internal rebellion under the ideal of nationalism? If so—and it undoubtedly is so—then a weak and barbaric Afghanistan is the best medium she can operate in. Our policy should, consequently, be similar to our present Frontier policy—that is, to encourage her to civilise herself and so render her Government stable. Civilisation and stability demand wealth, and wealth demands trade, and trade demands communications. These cannot possibly be purely strategical in nature, and geographically the areas in which they will run are well defined. They must tap the rich areas of Herat and Seistan, and run southwards and westwards to the Indus, and thence to Karachi, for the great wedge of mountains in the centre of the country, as well as the Hindu Kush, prohibit them running into the Punjab. The ultimate conclusion, and one dictated by commerce and trade, is that railways will eventually be built from Herat to Seistan, and from Seistan to Baghdad and to Quetta. This being so, our strategy will one day have to conform —we shall in fact, more so than in the past, be compelled to base our plans for the defence of India on an offensive in place of a defensive idea.

Political conditions being in a state of flux, since Europe and much of Asia are in the melting-pot, and strategical conditions being in a process of change, since strategy is largely influenced by politics, it follows that modifications will take place in tactics unless the art of war is to fall into a decline.

In the war which Russia has been waging with us during the last nine years we have received many psychological blows, and suffered more than one moral reverse, yet we have delivered no single blow in return, since we do not possess weapons that can reach her. Her aim is to undermine Western civilisation, and her main tools are gold and propaganda. There is nothing new in this form of attack, for it is patently Oriental, yet we have no certain means of protecting ourselves against it, since for centuries we have been thinking in terms of physical warfare.

Here is opened up to us a tactical area which we shall be compelled to exploit, and as Russia's aim is to destroy civilisation by setting class against class, the remedy lies not so much in attacking Russia in a similar way, but in eliminating the social diseases which have evolved within our civilisation.

Though this purification of society is not the duty of soldiers and sailors, it must not be forgotten that the first purpose of military power is to maintain law and order through a constant threat of the application of physical force. Consequently, if military power cannot accomplish this, its organisation must

either be changed, or a new instrument must be fashioned which can do so. Obviously no would-be invader can be dealt with effectively unless military force is based on the loyalty of the nation threatened. To enter upon a war from a rebellious and divided base would in a short time paralyse any Government. In fact, the main reason why Governments delay so long in declaring war on an aggressor is that they wish to make certain that the nations they represent will full-heartedly support them.

Besides these psychological changes which, sooner or later, will compel us to investigate the moral sphere of war, changes in the physical world are daily taking place. Since 1914 time and space have been contracted in a manner which borders on the miraculous, for movement, which is the soul of tactics, has become more rapid; and by movement I do not only mean increased powers of locomotion as introduced by aircraft and motor cars, but also movement of ideas and the transmission of information.

To-day the theory of Relativity is generally accepted, and the foundations of a new scientific world have been revealed. The law of gravity has been impeached, and the atom has been dematerialised, and has all but vanished into a vibration. The motor car has largely replaced the horse, and the day cannot be far distant when it will not necessarily require a road to travel by. Aircraft have crossed the Atlantic, and have flown to India and Australia, and the wireless telephone has enabled any citizen in London to talk to any citizen in New York.

The last twenty-five years have seen such stupendous changes due to physical science that we are apt to be blind to the fact that the tactical strength of fighting force is drawn from civil science and industry. Every one of the above-mentioned inventions must influence military action as they are influencing our peaceful activities. A few years ago we moved by roads, and our thought travelled along roads in post-bags. Movement was, in fact, linear; now it is all but universal, for the aeroplane needs no road or rail, and the wireless wave no wire or cable.

In the last twenty-five years the world has become more three-dimensional than ever before, and the art of war must follow suit if it is to remain an art, and not merely become an historical curiosity. During the war the submarine clearly demonstrated the possibilities of three-dimensional sea warfare, since the German 'U' boats nearly brought us to our knees; the aeroplane of three-dimensional air warfare, since armies and fleets could be avoided, and the nations they were protecting attacked; and tanks, being invulnerable to bullets and unimpeded by wire entanglements, re-established land warfare on a mobile footing. Besides these inventions, we find gun-ranging by sound and by flash; wireless

telegraphy being able to establish communication with unknown recipients, and gas being employed as a weapon against targets which not only could not be seen but were not even located or known to exist. The inner tendency of tactics from 1914 to 1918 was closely related to the general tendency of civil industry and science. When the old war instruments of 1913 failed in 1914 and in subsequent years, willy-nilly, and by a destiny which was inevitable, the soldier, sailor, and airman were compelled to fall back on science, industry and invention, just as in the Middle Ages soldiers were forced by circumstances to fall back on agricultural implements for their weapons.

Once the war is won, what do we see? The soldier and sailor, in spite of the fact that the armies and fleets of 1914 did not win the war, go back to their organisation and equipment with the addition of a few *et cetera*. The soldier still believes that infantry is the decisive arm on land, whatever this may mean, and the sailor thinks likewise of the battleship. The airman alone steps forward, because he can look at war fairly and squarely and is not blinded by tradition.

The armies and navies of 1918 won the war; this fact is beyond controversy. These armies and navies differed materially from those of 1914 which did not win the war, and the differences between the two can be deduced with little trouble. If the war had dragged on to 1922 we may be certain that the armies and navies of that year would have differed still more, and had it endured until November 1926 we may be certain that our Army and Navy to-day would bear little resemblance in organisation or equipment to their great-grandparents of 1914. By this I do not suggest that in organisation and equipment we should have progressed during the last eight years as if we had been at war. But what I mean is that in tactical thought we should never rest content, always remembering that though in peacetime we cannot have everything we desire, this in no way should prevent us thinking out the possibilities of the future, so that when the next war comes we may be mentally if not physically prepared to meet it.

From the above it will be seen that during the last thirteen years stupendous changes have taken place in the political, strategical and tactical conditions of war. The military and naval defeat of Germany removed the pivot around which international politics had revolved since 1871. The cost of the war and the destruction it entailed led to a social revolution which affected all countries, and in Russia established a new *régime* the ideals of which are antipathetic to Western civilisation, and sympathetic to the disturbed under-world in every country.

Incapable of attacking others physically, and herself all but invulnerable to physical attack, for nine years Russia has waged a relentless war on European nations, against which the old means of defence are all but worthless. This war is being fought out not only to establish a new ideal, but to keep Europe occupied whilst Russian imperialism creeps over Asia. The war area has thus shifted eastwards, the system of attack has become moral in place of physical, and is likely to remain so until political and social stability have been reinstated. Should such a condition be established, then—so I think—will physical force come back into its own, and as science is daily changing the means of civil life, war organisation must keep pace with these changes.

To revert to the opening section of this paper: the aim of policy is to secure a state of prosperous and contented peacefulness. This aim is fundamental, and is as essential to-day as before the outbreak of the war. Its fulfilment demands internal tranquillity and power to resist external pressure: these are the two great problems of government, the solution of which depends very largely on equating military force and world conditions. What is the nature of these conditions? Once this question is answered, the actions required to meet them can be formulated. Once this is done, then the next problem is to compare these actions with the limitations of existing military force, and the answer will show what can and cannot be accomplished with what we have. Then we can consider what steps we should take to strengthen or modify existing organisation, and so, by arriving at a perfected instrument, be in a position to formulate a war plan which will fulfil the aims of policy.

J. F. C. FULLER.

## THE GERMAN LOSSES ON THE SOMME

THE appearance of the Chancellor of the Exchequer's *World Crisis* a few weeks ago has led to a revival of old controversies on many details of the history of the Great War by land and sea, and to the starting of one or two new ones. Discussion has ranged from the general problem dear to the 'Eastern Front' and 'Western Front' enthusiasts down to technical details of the tactics used at the Battle of Jutland—on which naval pens wax furious and prolix.

The *World Crisis* contains two chapters—mainly statistical in character—on which one who was immersed in statistics from morn till eve during two years of the Great War feels bound to make his comment, lest figures should pass undisputed and deductions from them should grow into generally accepted truisms. These are the chapters on the 'Blood Test' and the 'Battle of the Somme'—sixty pages of closely reasoned and most interesting controversy. With their bearings on the general thesis of the book I shall have little to do. But it seems to me that many of the basic tables of statistics on which that main thesis rests need investigation and revision.

The Battle of the Somme is a terrible memory—only less terrible than the memory of the offensive of the following year, which, starting at Arras, finally died down in the mud and blood of Paschendaele. The offensive of 1917 was longer, and more costly by some 130,000 casualties, than that of 1916; but in all its months there was no single day so deadly to the British Army as the 1st of July of the earlier year, when fifteen gallant divisions flung themselves against the long German trench-line that stretched from Gommecourt to Maricourt—not much under twenty miles—and failed to break it, save on one comparatively short section at the south end of the hostile front. That day cost the assailants something like 40,000 casualties: the remembrance of its slaughter is still heavy on the minds of all who can recall its first impression. And four months of fighting only a few degrees less costly were to follow, till we had fought an irregular scrap of ground twelve miles long by seven miles deep at the price of something like 400,000 killed, wounded, and missing—not to speak of

the very considerable losses of our French allies at the south end of the battle line.

Now Mr. Winston Churchill's deduction from these deplorable figures is that while we were suffering heavily we were inflicting no corresponding punishment upon the Germans. On page 51 of his first volume he puts the casualties of the British in the Somme period at 481,842, and those of the enemy at only 236,194. The latter figure, however obtained, is (as I shall show) much less than half of the total German loss upon the Somme between July and November. And the total casualties of the British and French armies really work out, not at a 2 to 1 proportion, but to practical equality with those of the enemy. The figures are lamentable enough—but at least let us get them correct. And then the deduction from them may be somewhat different from that drawn in the *World Crisis*.

What no reader of that most interesting work would, I think, realise is that all through those dreadful five months the Germans, far from opposing us with inferior forces and suffering losses not half so great as ours, were being hit no less hard than the Allies, and were thrusting into the great *mêlée* on the Somme, one after another, every available unit that they possessed on the Western Front which was considered fit to stand the strain. They emerged from it with 50 per cent., 60 per cent., even 70 per cent. losses, and were sent to the rear in rotation, to be out of action for months, while the skeleton cadres were being refilled with recruits. Some re-appeared after a long interval with a new personnel, others were relegated for good to quiet fronts, or even sent to Russia, where the highest military qualities were not required in the German front line.

A wholly unfair effect is produced on pages 176–179 of the *World Crisis* when the awful losses of our 8th Division on the first day of the Somme battle—5500 of all ranks—are contrasted with the comparative immunity of one German regiment, the 180th, which, though in the front line, lost under 300 officers and men in its three battalions. Such a comparison is, of course, deceptive. The figures of the 8th Division ought in common fairness to be placed parallel to those of a German unit which fared badly on the bloody 1st of July, not to those of one which was fortunate. A very different effect on the reader's mind is left if we cite, not the figures of the 180th regiment, but those of its near neighbour in the line, the 111th Reserve infantry regiment, only half a mile away, which was taken out of the front by the enemy at the earliest possible moment and sent to the rear reporting 1850 casualties in its three battalions out of 2700 present, no less gloomy a record than that of our 8th Division; the whole of this loss was suffered on July 1 alone. Clearly the 180th had exceptional luck, and should not be quoted as a typical case.

I may cite another equally deceptive comparison made on page 51 of the *World Crisis*. We are shown figures purporting to prove that the British loss in officers on the Somme was four times that of the Germans—21,974 to 4879. A footnote does indeed remark that German commissioned officers were 'less numerous' per battalion than British. But who would guess from this note that in July 1916 we were sending into the line battalions with twenty-five combatant officers or more—the Germans battalions with only nine or ten?[1] For by this time the places of half the original commissioned officers in a German unit were being supplied by '*offizierstellvertreter*'—'substitute officers' who were in theory non-commissioned officers only. Having looked over many German regimental histories, which describe individual battle incidents, I can vouch for the fact that in very many German battalions more than half the platoons were at this time in charge of 'substitutes,' and that a company was lucky if it had more than three regular officers to lead it. To make a fair comparison of officer casualties we ought to reckon on the German side all these N.C.O.'s discharging officers' functions; and if this were done, the proportion of losses on the two sides would be not far from equal. In the German casualty lists, when totals and percentages are added up, it always appears that the proportion of officers killed, wounded, or missing is not much over 2 per cent. of the total losses of all ranks. This does not mean that they were told to spare themselves, but that there were not more than 2 per cent. of commissioned officers in the fighting companies of the unit—the duties of officers being discharged by N.C.O.'s to an extent of which we had at the time little conception. Hence an unjust criticism sometimes made on the paucity of casualties in the commissioned ranks of the German army: they exposed themselves freely, but were not numerous.

Turning back to the general topic of German losses on the Somme, we must remember that in July–November 1916 a normal German army corps had eighteen infantry battalions—not the twenty-four with which it started the war. From nearly every brigade one three-battalion regiment had been deducted, to make up the so-called 'reconstituted divisions,' with new and high divisional numbers, all of which had only three regiments and nine battalions. The infantry, therefore, of any army corps was now somewhere about 18,000 strong, and of a division no more than 9000 strong, if the cadres had been duly and recently filled up with drafts. But many units were not in this happy condition, having been hurried up from some distant part of the Western Front without full completion of their numbers, because they

[1] Not including, of course, paymasters, transport officers, surgeons, etc., on the staff of the regiment.

were so urgently required on the Somme that prompt appearance was more important than numerical completeness.

Now the German front against which the Allied attack was directed on July 1–5 was held by nineteen divisions, of which twelve had been on the spot on the first two days of the battle, while the other seven were hurried up on or before July 5. It may be worth while to give in detail the losses (first and last) of these original holders of the German line, in order that the reader may appreciate the fact that it was not British units alone which were suffering devastating casualties. The troops in line on July 1–2 were :

| | Casualties reported. |
|---|---|
| 2nd Guard Reserve division | 5,982 |
| 11th division, 12th division } forming the 6th corps | 16,688 |
| 11th Reserve division, 12th Reserve division } forming 6th Reserve corps | 14,811 |
| 26th Reserve division, 28th Reserve division } forming 14th Reserve corps. | 16,488 |
| 36th division (of 17th corps) | 4,027 |
| 52nd division | 5,906 |
| 111th 'Reconstituted division' | 4,002 |
| 121st 'Reconstituted division' | 6,278 |
| 10th Bavarian division | 5,644 |
| Total | 79,726 [2] |

I do not, of course, say that all these 79,726 casualties of the original German front-line troops on the Somme were suffered in the first five days of the battle, nor that they should be deducted only from the 108,000 men who would have been engaged if each of the 108 battalions in question had put 1000 men in line. That would imply a 70 per cent. loss all round, and a 90 per cent. loss in some cases, such as the 6th and 14th reserve corps. But some of these divisions were kept in the front line for many days after July 1–5 and received drafts, while others were withdrawn, rested, refilled, and sent into the line again in October or November. And the main losses of some of them (*e.g.*, the 111th Reconstituted division) are known to have been suffered at dates later than the early days of July. But undoubtedly the first-comers to the Somme fighting were hit no less hard than their British and French opponents. The 121st division, taken out of the line as early as was possible, reported 6278 casualties in the opening days, was sent to the rear at once, recruited, and despatched to Russia as incapable of Western-Front fighting any

[2] The British losses July 1 to 6 were precisely 71,506.

longer. The 123rd division, which reached the front on July 5, was withdrawn before July 12 with 4402 casualties and sent to Russia also. Of the 14,811 casualties of the 6th Reserve corps—original troops of July 1–2—we know that at least 12,000 belong to the first days of the Somme battle: of the 5048 casualties of the 185th division, which came up on July 5, and was gone by July 12, we know that 4000 date from its earliest appearance in the line.

Nor did the divisions which arrived at a later date than July 5 suffer less than their fellows. There were in line before the end of the month of July the 3rd Guard Reserve division, which registered 5010 casualties, and was sent to Russia in August; the 7th and 8th divisions (forming the 4th corps), reported 17,147 casualties; the 44th Reserve division of the 22nd Reserve corps, 8625; the 183rd division, 6833; the 17th and 18th divisions (forming the 9th corps), 17,289—besides eleven other divisions which did not report quite such annihilating losses, though none of them (I think) registered, first and last, less than 4000 casualties.

Of units arriving in August on the Somme, the 17th and 18th Reserve divisions of 9th Reserve corps reported 16,114 casualties; the 26th and 27th divisions (forming the 13th corps), 10,100; the Guard Corps (1st and 2nd divisions), 11,480; the 4th Guard division, 6298; the 23rd and 32nd Reserve divisions (forming 12th Saxon Reserve corps), 15,543; the 8th Bavarian division, 6429; the 3rd and 4th Bavarian divisions (forming the 2nd Bavarian corps) 12,307—besides five other divisions which suffered less than 50 per cent. losses, though none (I think) less than 35 or 40 per cent. ones.

And so matters went on till November, new combatants being drawn from every corner of the Western Front, till something like a hundred divisions in all had been put through the mill. Some went in only once and were never fit for a second turn, having suffered practical annihilation; some, having been rested and recruited, after being withdrawn in July or August, were back again at the front in October and November. I note that of the twelve divisions which had held the line on July 1–2, four were again on the Somme in the end of the year, three had been sent to Russia by September, and five were resting on quiet (or comparatively quiet) sections of the French front.

The system of the Germans in reporting losses in their official *Verlustliste*, which appeared almost daily, was to start in each number with the losses of the senior regiment which had sent in a report lately, and to go down numerically through the units till the last name of some small technical corps or labour battalion had been reached. Thus of three successive regiments whose casualties appeared one after another in the *Verlustliste* of one

day the first might be in Russia, the second in Alsace, and the third opposite Ypres. It was obviously the purpose of the editors of these lists to mix up losses on all possible fronts, in order that their readers in the calculating bureaux of Paris or London might be given as much trouble as possible in collecting useful statistics. So the casualties of a single regiment were dropped about in many successive numbers of the *Verlustliste*—those of five companies (perhaps) appearing on the first day of the month, those of three others on the fifth day, those of the remaining four on the tenth. And this was still more the case with simultaneous losses in a brigade or division; sometimes in a three-regiment division engaged on a definite day all the casualties of two of the regiments might be printed at one place or another in the lists of (let us say) September 1 to September 6, but those of the third regiment might not begin to appear till September 25 or even October 1. It was possible for the calculator in London or Paris to say, 'We know that the *x*th division was heavily engaged on September 1—we have losses of regiments *a* and *c* of it amounting to 1000 each, but none of regiment *b*, though it is now a fortnight since we counted the last names of regiment *c*. Regiment *b* must send in its casualties soon, and they will probably not be less than 1000 also: perhaps they will be a good many more, the heaviest sufferer having been reserved for the last printing.' This sort of calculation was invariably justified by the appearance of the belated statistics within a few days. The main difficulty of the compiler was to keep up an accurate account of the arrival and departure of German divisions on the particular front whose statistics were under his charge. But information from the front was wonderfully good and prompt.

The only real difficulty that occurred in counting the Somme casualties was that the Germans used two extemporised divisions, named after their commanders, Generals Liebert and Franke, which consisted of stray battalions (or in some cases regiments) drawn from different units, and hastily thrown together. When the identity of one of these battalions (or regiments) was established it was rather natural to assume that the rest of the regiment (or division) to which the detected unit belonged had arrived on the Somme. It took some time to discover, *e.g.*, that though the 100th and 125th regiments (both under Franke) had arrived, this did not mean that the whole of the 23rd and 26th divisions to which they belonged respectively had yet reached the front—though both ultimately did so. Liebert's 'group' of thirteen miscellaneous battalions opposite the French was a specially tiresome problem. However, such difficulties were always solved in the end.

The casualties which the Germans kept reporting from the Somme were progressively printed with longer and longer inter-

vals between the day on which the casualty occurred and the day on which it was acknowledged in print. By November as much as four or five weeks intervened. The acknowledged totals had got up to about 450,000 for the infantry alone by the end of the November *Verlustliste*, when the large majority of the losses of that month had not yet been printed. Then, in the first days of December 1916, the Berlin office suddenly 'shut down' and published no more regimental lists. The reason was obvious—the total was getting too ghastly, and the information afforded to the Paris or London calculator was too valuable.

From December 6 onward the system adopted was to publish every day only alphabetical lists of individuals from A to Z, with no indication of the unit to which any man belonged. Those who fell on the Russian or Balkan front were mixed in with those who fell in France or Belgium. No further information as to regimental casualties was obtainable, save by methods more circuitous and difficult than that of merely compiling the totals of the *Verlustliste*.

What were the missing October–November figures? We know that many late-arriving divisions, which only came into the front line in October or November, had not yet had their recent losses acknowledged. By December units known to have been deeply engaged in the desperate fighting on the Ancre about Beaumont Hamel, etc., in November had not yet printed any losses at all, and units withdrawn to the rear as exhausted (*e.g.*, the Marine division and the Bavarian 1st corps), which had turned up for the October fighting, had only just commenced to dribble in their first casualties when the *Verlustliste* ceased to print regimental figures.[3] I cannot put the unacknowledged German infantry losses, which had not been published by November 30, at less than 60,000—a figure much smaller than those actually published in any of the months August, September, October, November from the Somme front, in three of which the totals came to well over 100,000 casualties per month, and in the fourth to nearly as much.

The whole therefore works out as—infantry losses acknowledged in the *Verlustliste* down to end of November 450,000; unacknowledged infantry losses for late October and November, 60,000; losses, July–November, of artillery, engineers, pioneers, sappers, train, technical troops, labour battalions and other auxiliary units, at least 50,000 (a most moderate estimate, for many batteries were annihilated); total, 560,000.

And what were the corresponding figures on the side of the British and the French? Almost exactly the same, so far as I can make out, as those of their adversaries.

[3] By December 1 the two divisions of the 1st Bavarian corps had only printed 1900 casualities out of their 18,000 infantry; yet they are known to have been withdrawn, absolutely knocked to pieces, before the end of November.

The British scheduled figures for the Somme battle are 410,000 killed, wounded, and missing. Those of the French (quite wrongly estimated by Mr. Churchill) were 159,000. The total of 570,000 is practically the same as that of the Germans. But it seems likely that the British loss is decidedly overestimated, as it is arrived at by taking the whole loss of the Army on the Western theatre of war from July 1 to November (463,000) and deducting an arbitrary 53,000 for five months' losses on the whole of the front outside the Somme area. I agree with General Maurice in thinking that 53,000 is a very low estimate for the wastage in five months on a 120-mile front, upon which there were not only the usual day-to-day casualties which occurred along the line at all times, but several sharp snatches of fighting on a considerable scale—as at Armentières, and in front of La Bassée and Lens. In a period of 'stabilisation,' as it was grimly called, when no first-rate operations were going on, the normal British wastage was never so low as 10,000 per month—the rate allowed by this deduction of 53,000 men from the British total loss from July to November.[4] I should suspect that 75,000, or even 80,000, would be more like the figure that should be deducted for losses on the "quiet front" in July–November from the total casualty list of the period; and in that case the German and the Allied losses would be not far apart—the German slightly heavier.

Mr. Winston Churchill has printed on pages 187–192 of the *World Crisis* an estimate of casualties made by himself at the time of the Somme battle, which he communicated to the Cabinet in August, during the second phase of the operations. It was intended to prove—what he still apparently holds—that the British losses were twice and thrice those of the enemy at this moment. But unfortunately all the German data in it are wrong. He disputes, for example, the statement that by August 1 there had been thirty German divisions in action on the Somme, and will not allow for more than eighteen. To summarise his argument: He holds that statements that the Germans had brought up thirty divisions should be distrusted. Where could they have come from? The fact that units belonging to thirty divisions had been identified by contact, if true, was no proof. It might well have been that individual regiments or battalions which were 'resting' had been scraped up from different fronts to meet the local emergency. But this might not mean that more than the equivalent of six or seven whole divisions have been concentrated. If this were so, the British Army might not have been fighting more than fourteen or fifteen divisions—possibly not so many.

[4] One division lost 1700 men in August-September holding the sector by the Hohenzollern Redoubt.

Now it was quite true that at this time there was the mixed and heterogeneous 'group' or very large division scraped from many fronts of General Liebert fighting the French at the south end of the line. But, not counting this abnormal unit, thirty-three complete divisional units had been engaged on the Somme by August 1 and forty-five by August 31. As fast as a division was used up and withdrawn it was replaced by another, so any arguments based on average divisional losses and a low number of divisions engaged must fail. The Germans were drafting in units from all quarters to the *mêlée* to replace decimated and tired divisions just as we were doing ourselves. By the end of November, it would seem, nearly a hundred had taken their turn, of which some thirty had been given a double turn, with a long rest at the rear in the interval.[5] As to their losses, the one certain thing on which we can count is the absolutely contemporary *Verlustliste*, which give every man's name, rank, company, and unit. They are not statistics, but nominal regimental rolls sent to Berlin by the proper regimental authorities. If they err, it is probably on the side of understatement of losses. Both in Paris and in London careful testing operations were carried out during the war, consisting of the comparison of the names of the German prisoners from a chosen unit who were alive and visible in Allied prison camps, with the names of the 'missing' of those regiments in the *Verlustliste*. It was found that on the whole the lists were fairly correct, but there were a certain number, not a very large percentage in most cases, of live prisoners in England and France whose capture their regiment had never acknowledged. It would seem fair then to suspect that the *Verlustliste* figures are always an understatement—if no very great one—and certainly never an overstatement of casualties.

With the analysis of these contemporary documents before me, I must confess that I cannot trust the post-war statement of the *Reichsarchiv* that the Germans lost a total on all the Western fronts of 630,192 killed, wounded, and missing between July 1 and December 31, 1916, *i.e.*, only 70,000 more than the 560,000 casualties on the Somme front alone. For this 70,000 would have to account not only for all daily wastage on every part of the line save the Somme front for six months, but also for the losses in the disaster suffered by the Crown Prince's army before Verdun on October 24, when General Mangin cleared the Germans out of all their front lines, with a loss of some 20,000 men at least, including 6000 prisoners, and many scores of guns. The figure is altogether too small. Nor can I understand another statement of the same Berlin bureau which purports to distinguish in casualties of July–October 1916 between those suffered opposite the

[5] See the table at the end of this article.

French and those opposite the English. For many of the German divisions on the Somme were engaged at one time and another with both of the Allies, and in some of the operations (*e.g.*, those round Combles) they were fighting with English and French troops acting in co-operation on the same ground. Who could tell whether a casualty was caused by a French or an English bullet or shell? Some very rough-and-ready method must have been adopted here, and I distrust its accuracy.

Into the general deductions on strategic policy in East and West which may follow from a misconception of the relative losses of the Allies and the German on the Somme I do not propose to enter. But I hope that I have done something to make the basic facts of those statistics a little more correct and accessible.[6]

TABLE OF NINETY-FIVE GERMAN DIVISIONS WHICH FOUGHT ON THE SOMME FRONT, WITH DATES OF THE PRESENCE THEREON.

N.B.—This table is not absolutely, but very nearly complete.

(1) 1st Guard division. (1) From July 28 to early in September; (2) late October and November.
(2) 2nd Guard division. Ditto.
(3) 3rd Guard division. Early July only. Sent to Russia in August.
(4) 4th Guard division. (1) July 25 to August 19; (2) about September 10; (3) November 6 to 25.
(5) 1st Guard Reserve division. (1) Late July to August 19; (2) a short turn in September.
(6) 2nd Guard Reserve division. July 1 to September: several changes in location.
(7) 5th division (3rd corps). July only.
(8) 6th division (3rd corps). October 8 to 29.
(9) 7th division (4th corps). (1) July 24 to 28; (2) September 17 to October 2.
(10) 8th division (4th corps). (1) July 3 to 23; (2) September 18 to October 1.
(11) 9th Reserve division (5th Reserve corps). September 25 to October 18 only.
(12) 10th Reserve division (5th Reserve corps). October 5 to October 15 only.
(13) 11th division (6th corps). (1) July 1 to 20; (2) September 5 to October 10. [Reported 83 per cent. losses.]
(14) 12th division (6th corps). (1) July 1 to 14; (2) July 30 to August 9; (3) October 25 to November 19.
(15) 11th Reserve division (6th Reserve corps). (1) July 1 to 20; (2) October 1 to November 1.
(16) 12th Reserve division (6th Reserve corps). (1) July 1 to 14; (2) September 25 to November 5.
(17) 13th division (7th corps). September 12 to 19.
(18) 15th division (8th corps). (1) Part of July and early August; (2) October.

[6] Mainly from *die Schlachten und Gefechte des Grossen Krieges*, prepared by the German General Staff.

(19) 16th division (8th corps). (1) Late July to late September; (2) October 9 to 29. Sent to Russia.
(20) 15th Reserve division (8th Reserve corps). Lent units to Liebert in July. Whole division in October.
(21) 16th Reserve division (8th Reserve corps). Lent units to Liebert in July. Whole division October 15 to November 28.
(22) 17th division (9th corps). July 9 to July 25 only.
(23) 10th division (9th corps). Mid-July to late September.
(24) 17th Reserve division (9th Reserve corps). (1) July 25 to August 14; (2) September 21 to October 10.
(25) 18th Reserve division (9th Reserve corps). (1) July 28 to August 14; (2) October 1 to 12.
(26) 19th Reserve division (10th Reserve corps). October 10 to 26 only.
(27) 21st division (17th corps). (1) September 12 to October 1; (2) late November.
(28) 22nd Reserve division (10th Reserve corps). July 1 to 10 only.
(29) 23rd division (12th corps). Lent units to Franke in July. Whole division September 15 to October 25.
(30) 23rd Reserve division. (1) Early July; (2) early November.
(31) 24th division (19th corps). (1) August 8 to 20; (2) September 20 to November 10.
(32) 24th Reserve division. (1) Early July; (2) early November.
(33) 25th division (18th corps). (1) September 15 to October 1; (2) late November.
(34) 25th Reserve division (12th Reserve corps). Mid-July to early September.
(35) 26th division (13th corps). (1) Late July to August 25; (2) mid-November.
(36) 26th Reserve division (14th Reserve corps). (1) July 1 to July 13; (2) mid-October.
(37) 27th division (13th corps). (1) August 1 to August 25; (2) mid-November.
(38) 28th division (14th corps). July 20 to October 1.
(39) 28th Reserve division (14th Reserve corps). (1) July 1 to 13; (2) October.
(40) 29th division (14th corps). Late September to November.
(41) 30th division (15th corps). Late September to late November.
(42) 32nd division (12th corps). Lent units to Franke in July. Whole division September 4 to 10.
(43) 35th division (17th corps). July 1 to September 5.
(44) 36th division (17th corps). July 1 to October 15. [At very edge of battle area.]
(45) 38th Division (11th corps). October 12 to 22.
(46) 39th division (15th corps). October 20 to November 11 only.
(47) 40th division (19th corps). (1) August 8 to 20; (2) October 15 to November 11.
(48) 44th Reserve division (22nd corps). (1) July 3 to 10; (2) October 9 to 30.
(49) 45th Reserve division (23rd corps). September 9 to 25 only.
(50) 46th Reserve division (23rd corps). (1) September 8 to October 6; (2) October 20 to 25.
(51) 50th Reserve division. (1) September 20 to 28; (2) November 20 to 30.
(52) 51st Reserve division (26th corps). October to November.
(53) 52nd division. Late September to early November.

(54) 52nd Reserve division (26th corps). September to November.
(55) 53rd Reserve division (27th corps). September 15 to October 5 only.
(56) 54th Reserve division (27th corps). September 1 to September 14 only.
(57) 56th division. August 24 to September 9 only.
(58) 58th division. September 20 to early November.
(59) 103rd division. October 8 to November 10.
(60) 111th division. (1) July 1 on edge of battle area; (2) August 20 to September 6; (3) October 25 to November.
(61) 113th division. (1) July 1 to 13; (2) October 1 to 20.
(62) 117th division. August 8 to 27 only. Sent to Russia.
(63) 121st division. July 1 to 4 only. Sent to Russia at once.
(64) 123rd division. July 10 to August 15. Sent to Russia August.
(65) 183rd division. (1) July 1 to 24; (2) October 1 to 20.
(66) 185th division. (1) July 1 to 18; (2) October 20 to November 1; (3) November 10 to December 9.
(67) 206th division. October 20 to November 25.
(68) 208th division. November 18 to December 12.
(69) 211th division. October 14 to November 6 only.
(70) 212th division. (1) September 15 to October 5; (2) October 25 to November 25.
(71) 213th division. (1) September 15 to October 5; (2) October 25 to November 23.
(72) 214th division. September 14 to 28 only.
(73) 221st division. October 21 to December.
(74) 222nd division. November 5 to December 7 only.
(75) 223rd division. November 9 to November 21 only.
(76) 243rd division. October 3 to November 18.
(77) 4th Ersatz division. September 27 to October 14.
(78) 10th Ersatz division. September 10 to September 25 only.
(79) Marine division. End of September to November.

(80) 1st Bavarian division (1st B. corps). October 13 to end of November.
(81) 2nd Bavarian division (1st B. corps). End of October to November.
(82) 3rd Bavarian division (2nd B. corps). August 25 to September 27.
(83) 4th Bavarian division (2nd B. corps). August 25 to September 27.
(84) 5th Bavarian division (3rd B. corps). September 7 to 20 only.
(85) 6th Bavarian division (3rd corps). September 7 to 27 only.
(86) 1st Bavarian Reserve division (B. Reserve corps). (1) August 8 to 13; (2) end of August and early September.
(87) 5th Bavarian Reserve division (B. reserve corps). August and early September.
(88) 6th Bavarian Reserve division. September 27 to October 13 only.
(89) 8th Bavarian Reserve division. July 20 to August 15. Sent to Roumania September.
(90) 10th Bavarian division. July 1 to 20. Sent to Russia August 13.
(91) 14th Bavarian division. Late November only.
(92) Bavarian Ersatz division. October 25 to November 15.

(93) Liebert's provisional division. July. Then dissolved.
(94) Franke's provisional division. July. Then dissolved.
(95) Provisional brigades, Osten and Scholz. Late August only.

CHARLES OMAN.

## 'THE OLD MAN OF THE SEA'

[*It is with the greatest regret that I have to state that the author of this article died while it was being printed. He has been for long closely associated with the Review, has written many valuable articles in it, and his death is a great loss. An article entitled 'The Advantages of a Classical Education,' by George H. Bonner, appeared in the January number of the Review. The article now published gives another point of view.*—EDITOR, *Nineteenth Century and After.*]

LET us keep our system of 'classical education,' if for no other reason than that we cannot get rid of it, even if we wished to do so, but let us clear our *minds* of cant. (The emphasis is not mine.)

The men who succeed in life, nominally on account of their classical education, really succeed for different reasons altogether. They succeed, *i.e.*, by virtue of the social 'pull' supplied by the fact that they were at school with the offspring of important and influential people, who have themselves been through the classical mill, and who have passed their lives in murmuring 'classical education,' with the same hypnotic effect produced in other days by 'the blessed word Mesopotamia.'

On the face value of things it is absurd to suppose that study of what was going on 2000 years ago can be of any value in the battle of life to-day. To maintain that it is 'the only education of value' is blankly idiotic; nevertheless, such is the position usually assumed and defended by every form of denunciation, from courteous condescension to vulgar insolence.

To be at the right school (there is only one) or at a tolerably good school—this is the beginning. Everything flows in order from this beginning. The next important step is to belong to the right 'set'—that is to say, the right set from the athletic point of view. Book learning counts for very little, unless, as Sir Hugo Mallinger sagely indicated to Daniel Deronda, 'You propose to become a don, and write donnish books.' All this leads to a modest and obscure success; but let us return to the great tide of life. Having been at the right school, or as good a school as circumstances will allow, one will always find oneself, after leaving school, in a sound set of people who speak one's own

language and to whom it is less trouble to support one in 'scrapes' than to thwart one.

It might reasonably be assumed that if a boy has sufficient intelligence to master the principles of sound government as laid down by 'the ancients,' as they used to be gracefully called, he would find some use in life, even for his book learning. Unhappily the contrary is the case. The statesmen, so called, who have wrought the most abiding mischief to their own country, and, with their own country, to countless millions of people whose happiness depends upon our success, are those who have absorbed from childhood upwards all that 'the ancients' could teach us of their wisdom. It is perhaps significant that of recent years the claimants of the 'only sound system of education' have added to their 'mountebankeries' the claim that it alone trains the mind on sound business lines, adding to this absurdity the following reason—if 'reasoning' it can be called: 'Just as the boy takes his Propertius or his Virgil and a grammar and dictionary, endeavouring to discover what the author's meaning may be, so in after life he addresses himself to the concrete problems of existence and achieves success.' There might be something in this if such were the way in which the ordinary schoolboy sets to work, but the omission of the reference to a 'crib' is a fundamental vitiation of the whole position, which, for the rest, is purely farcical. If it were not farcical, every counting-house would be full of classical scholars.

No use in politics! No use in business! Where, then, are we to place classical learning?

It is a gentlemanly accomplishment. This is much: there are not many such. It is touching, however, and not a little mortifying, to listen, so to speak, to the classically trained mind. Listen patiently and make a note of its aridity. This may be partly the result of bad teaching in youth; but when we contemplate say, for example, the prose style in English of such classically trained writers living and dead we are constrained to the impatient exclamation, 'But no; but No, this is *not*—it most emphatically is *not*—the way to write English.' After all, an Englishman ought to be able to write his own language, and this is what your classically trained man is incapable of doing.

The only 'crib' ever employed by the present writer was a Dauphin Virgil. Even to-day, after the lapse of half a century, he can recall the beautiful binding, the exquisite print, and above all the felicitous handling, of the explanatory prose. At least, it appeared to be felicitous to the youth of fifteen. Such a treasure trove was a source of ravishment and joy; but it must be admitted that this particular student was intensely ambitious and possessed (or believed himself to possess) some slight tincture

of critical taste. To such a student such a 'crib' is an abomination. One felt this not as a revolt against fundamental morality (not that one employed, or was even conscious of, such expressions, but because of the incoherent conviction that 'crib'-learned lessons were neither learnt, nor were they lessons. Chewing sawdust! He would have done much better from every point of view if he had spent his time in playing cricket.) The tendency towards the artistic expression of emotions in any form in youth is dangerous. The late Mr. Hornung went so far as to denounce it as 'worse than the whisky habit.'

Our vision is much clouded by the employment of the word 'scientific' as the antithesis of 'classical.' 'Modern' is the correct word to employ. When 'modern sides' began their struggle for existence in the year 1861, and for many years afterwards, they were jeered at as only fit for 'slackers.' The 'modern side' included all modern languages, all laboratory pursuits, and, of course, the language and literature of our own country. 'Slackers,' if you please!—minds in eager pursuit of these exacting and exquisite subjects. Incidentally we contemplate the mind of a first-class teacher, to whom the present writer, according to his wont, made the above reflections. (In those days one often threw these stones into pools to see how deep the water might be.) The answer came like the crack of a whip: 'You can't do it; it's too easy. There is nothing in English for a boy to get his teeth into. Besides, it's all slip-slop, and always changing.'

Some years afterwards, and listening attentively to the words of the same man (a head and shoulders above one's own mental stature), one was somewhat taken aback to hear him deliver himself as follows: 'You can't do it; it's too hard. Besides, it's always changing. The great advantage of the classics is, they are for ever fixed and cannot be altered.' Thus we see how fine and logical and consistent is the classically trained mind.

Issues joined in the year 1861 to the accompaniment of jeers. After this there came, what was for England, a transformation scene of the three vast and varied professional studies; our own language and literature was derided, and remains derided to this day, as will be shortly demonstrated by some arithmetical details.

Modern languages received, and continue to receive, slightly more respectful attention, owing to the fact that our rivals in trade undoubtedly did business in those languages, and had to be considered accordingly. Nevertheless, the Englishman's last argument, 'Let them all learn English,' prevailed; and as a serious study modern languages continued to be ignored. Science, however, stood on a different footing.

Slowly, yet not very slowly for Englishmen, trade awoke to the fact that laboratory studies, incredible as it might appear,

could actually be turned into money. At this point some figures might be useful. Some years ago the present writer made a tour of the English and Scottish universities—chiefly with the view of finding out what might be the relative value, expressed in cash, of the subjects taught there. Ruling out the classics, which had, and have, first call, not only on their own province, but on every other appointment worth having, we come to modern subjects. These, once closely allied in the struggle for existence, were now fiercely divided. The professors of laboratory studies were paid salaries—not large ones, but still salaries, say of 1000*l.* a year. All the other subjects were derided, none denouncing them more fiercely as 'talky-talky' than their former comrades in arms. Language and literature of our own country occupied a position of pitiable insignificance. These two ran a race for what might be described as (perhaps by a confusion of thought) 'the wooden spoon.' Sometimes history won, sometimes literature, their position being defined by a salary which a good cook would hesitate to accept to-day. Sometimes literature was thus degraded. Modern languages were slightly better treated.

It is true that in the older universities chairs of history were paid as much as a second-rate laboratory expert; but these invariably turned into political jobs, and, being really of some trifling money value, were mostly grabbed up by the classics.

All this is in strict accordance with the principles of an age ruled exclusively by self-interest and asking at every step, 'What is the use?' and 'How much?'

What is the use? What, indeed! All this time we are arguing about the value of a language—say Latin, which we do not even know how to pronounce; and we ourselves do not know how our own language was pronounced 300 years ago. Could anything more ludicrously hideous be imagined?

Let us return to the considerations with which this article opened. If those are sound, we perceive clearly enough that there are no educational advantages in the study of dead things: the advantages are incalculably great, but purely social.

Two great races rule the world—the Jews and the Scots. What do these think of a classical education? The Jews put it in its natural place as training for a gentlemanly accomplishment. Any man who has leisure and skill may reasonably enough immerse himself in the study of the past, just as he may make himself an expert in Satsuma, for example, but no Jew imagines that such studies will enable him to succeed in the struggle for life.

The Scot acts in very much the same way, although he pays tribute to a system long established in his own country and therefore respectable, not to say venerable. One of the greatest

Jews of the last century said to me: 'Every fresh language that you learn to *speak* makes you another man.' True—most true; but it is to be observed that the great Jew said every language that you learn to *speak*, not a language in rags and tatters which you have been taught to jabber about.

Banter is all that the hapless champions of life have left remaining to them—some comparing the claims of their opponents to springs warranted to make stout people thin and thin people stout.

But, however much they may banter, the classics will remain, for our time at least, the 'Old Man of the Sea.'

W. F. Lord.

## *DUELLING AND SWORDSMANSHIP*

A SHORT time ago the twenty-fifth anniversary of the Amateur Fencing Association was celebrated in London by an assault-at-arms in which the champion fencers of France, Belgium, Holland, Italy, and the United States took part against the best in England with foils, with sabres, and with duelling-swords. It is chiefly about this last weapon I desire to write, for it has produced, during the last five-and-twenty years, one of the best games we have ever learnt from France—the country which also taught us real tennis and the chivalrous formalities of the ancient hunting-field, and through them bequeathed to us, from Shakespeare onward, almost as many technical terms in sport as we have taught her in the twentieth century.

To make a real game, a different weapon from the conventional foil-play, with its artificial ceremonies and restrictions, was essential. In these days of constant competition a result—a score—is undeniably demanded. It has to be faced. You cannot place two weaponed men in front of one another without seeing it is inevitable. True it is that, between the pairs of figures we saw so gracefully competing in Northumberland Avenue the other night, there now floats no sinister shadow of the grave. Yet for the fencer, in all other ways, the rapture of the duel exists. The deeper note of irremediable inexcusable tragedy is for ever silenced, but the whole gamut of the higher chords is left, and to their resonant harmony is set the lilting tune of modern fencing with the duelling-sword.

The weapons used and the rules of the game are precisely the same as the rules drawn up for any modern duel in Paris by two pairs of modern seconds. A mask and glove, perhaps a jacket or an apron, alone suggest that bloodshed may be happily avoided without spoiling any of the fun. There are no conventions. From the crown of his head to the sole of his foot a man may attack his adversary, and must defend an equal area upon himself. One touch anywhere (there is a button on the point), and the bout is over. You might call it ' strictly business.'

It may be interesting to describe a duel I saw some five-and-twenty years ago in Paris, just to show how like the real thing this fencing is. Both men (they were journalists) may still be alive,

for all I know, so I will call one John Doe and the other Richard Roe.

They had arranged to meet on a Monday morning of October in the Parc de St. Cloud, but when they got there the ground was so wet and muddy that—since both duels and fencing matches can be held either indoors or out of doors at any hour, provided there is enough light and a good foothold—they mutually consented to fight in the riding school in the Avenue de la Grande Armée. Their seconds were two distinguished literary men who had for once laid down the pen that is nowadays so often mightier than the sword.

They fought with the usual duelling-sword, a long and straight triangular blade which tapers from the cup-like handle down to a fine point, and this is usually disinfected in some rough-and-ready way before the start, for a clean wound is quite enough to settle the matter without unpleasant complications. And I should like to say that this triangular blade, though only the point is used for offence, can make a much more serious wound than you may think, for it widens as it penetrates, and either in entrance or withdrawal a slight twist of the wrist is unavoidable, which makes it worse.

Let me add, too, that a great deal of nonsense used to be talked about the way a foreigner would stop fighting 'for a mere scratch.' We English ignorantly argued from our own experience of boxing, in which a man may take a good many hard knocks for nearly a dozen rounds perhaps before he can stand up and defend himself no longer. The effect of a wound with a pointed sword is very different, both in effect and in geography. A boxer gets you squarely either on head or body every time he passes your guard, for you are fighting him within reach of the knuckles at the end of your arm. The duellist's reach is not only a yard longer by the length of his sword-blade, but the lunge he can make by the full extension of his left leg, while the right knee carries the weight of the body forward, is also a far more free development than any 'straight left' you can see in a boxing ring. This means that, in a duel, very few wounds actually reach the head or penetrate deeply in the body. The duellist so manages his own defence that, even if the enemy's point gets past his sword-hilt, his sword arm, in its whole length, may still protect his body. The majority of wounds, therefore, are on the arm from the shoulder to the wrist, and especially from the wrist to the elbow, while it must be remembered that even a very slight penetration of the armpit may lacerate the duellist's lung. That is one penalty he pays for standing far more sideways than any boxer who uses both his fists.

The duellist's left (or unemployed) hand hangs lightly down

just over his left shoulder when he comes on guard, and straightens down behind him with the palm almost turned upwards when he makes his lunge by straightening his sword arm in precisely the same line as that in which his right foot is pointing forward. And I must add that the hand which holds the sword always has its knuckles pointing downwards and almost exactly parallel with the ground. Take a poker and try and poke a particular piece of coal in the fireplace. You will probably miss it, because the natural gesture is to hold your poker with the knuckles upwards, and the point drifts vaguely out to the right or left. But take your walking-stick (a straight one with a knob) and hold its handle in your open palm with the knuckles downwards, and you can ring an electric bell-push with the ferrule from a distance of 6 feet.

I have told you these details so that you may realise how much easier it is to touch a man on the forearm than anywhere else, and I want you to understand that what looks like a comparatively harmless scratch or prick may positively so incapacitate a man that it would be sheer murder to continue. I am no anatomist. But I believe the reason is that after only a few minutes' sword-play the nerves and muscles on the surface of the skin are in a state of tension and full of pulsing blood. The effect of a sudden destruction of the balance of forces by only a slight wound sufficient to produce blood is of such a nature that the fingers fly out helplessly and a man can no longer direct or even grasp his sword.

But my two duelling journalists have been kept waiting long enough. I must get on with their actual fight; yet I believe they would be the first to forgive me if they knew my delay was due to my desire to make you thoroughly appreciate the combat which follows. They fought in ordinary walking gloves, trousers, and unstarched shirts. Rounds were three minutes each, and they changed ends each time after their seconds had tossed a coin for the first position. Each had twenty metres measured from the centre in which to retire; and each kept whatever space he won, so that the man who retreated the whole distance would eventually have to stand his ground and fight.

It is difficult to describe a fight to readers who may not be acquainted with the technical names for various attacks or parries. But I will do my best. Richard Roe made the pace very hot from the word 'Go.' He strove continually to beat his adversary's blade aside and either go straight in or deceive the guard and thrust upon the other side; and he kept to the high lines above the waist. John Doe, on the other hand, guarded himself warily, waiting for an opening; and it may have been because his ripostes were usually aimed below the waist that,

after a sudden flash of steel, both seconds rushed in, the opposing swords were beaten up, and the attendant doctor carefully examined Doe's forearm for exactly the kind of incapacitating scratch I have described. There was nothing there. The end was to be much more decisive. The men were replaced in exactly the positions they had held when the fight was stopped. The third round began with the fiery Richard as impetuous as ever. In less than a minute he had parried an attack, and replied with such rapidity and vigour that he ran his adversary through the hand. His sword was bent with the violence of the blow, and poor John Roe was unable to hold a sword, or a pen either, for some weeks afterwards.

This habit of settling a quarrel was so prevalent some thirty years ago abroad that editors used to have a fighting man ready to deal with awkward correspondents, a better method perhaps than shooting them up promiscuously, as was contemporaneously fashionable, I understand, in some parts of the United States. Personally, as an editor, I am still glad I learnt to fence when I was a young student in Paris, where I naturally conformed to the customs of the country by fighting once or twice myself. But I used the straight duelling-sword. And I am glad I never had to face an angry young Italian, for example, with the light sabre his countrymen have brought to such perfection, using both point and edge—one of the deadliest and most fascinating weapons in the world.

On some other occasion I must try to tell you how the duelling-sword was developed during the gradual progress of the art and science of man-killing throughout man's history, and a very extraordinary story that is, more particularly the English part of it. And you should understand that the duel with swords or pistols died out in England chiefly because we liked boxing better, and the fashionable young Corinthians of our aristocracy took very kindly to the game. I suppose I might put Squire Osbaldeston somewhere on the border line. He was a small man of about eleven stone, and the best rider in England across a country on his own line, one of the best cricketers, a first-rate oar, a remarkable tennis player, and so deadly a shot that he could put nine bullets out of ten into the ace of spades at twenty paces. He was so good with his fists as well that when he took on Shaw, who was three stone heavier and nearly half a foot taller, he broke two of the lifeguardsman's ribs with a hard right to the body. When he challenged Lord George Bentinck to a duel with pistols everyone thought it was all over with Disraeli's friend. But bloodshed was averted, and the whole story of that dramatic meeting is too long for me to tell here. It suggests, however, that the Continental custom of duelling did at least assist in putting that

pestilent person the swaggering bully in his place, and it seems to me to have preserved a somewhat higher standard of personal courtesy than obtains abroad to-day.

Here at home I only hope every English boy is taught to box. Some men will learn nothing till they have been knocked down. But I hope also that many more Englishmen will learn to fence. It is astonishing how this beautiful art has spread since I was captain of the first English team that crossed the Channel for an international tournament. Now you find hundreds of young men in the Army, the Navy, or the Air Force learning the foil and sword and sabre. And in half an hour they get out of it as much hard exercise as any other game except squash rackets can give them in the same time. Fencing is equally first-rate for the business man, the city clerk, and all who have to work in London. For you can fence at any age, at any hour, indoors or out of doors, in any weather. Learn the deadly simplicities of the duelling-sword, pick out half a dozen friends, and get to work. The scoring is perfectly easy. Everyone fights everybody else. The winner is the one who is least hit; and every bout ends at the first hit lodged on either of the competing pair.

In this game I have fought all over London: in the quiet pleasances of Lincoln's Inn, of Gray's Inn, or of the Temple; in the beautiful grounds of Chelsea Hospital, or the sacrosanct paths behind St. James's Palace; in Regent's Park; even in the high open space between the Adelphi Terrace and the Thames, where my Athens fencing team took up the challenge of the rest of England and were fortunate enough to win. Since those days the art of fencing has definitely taken its place in English sport. One of its most brilliant exponents is one of the finest Rugby players we have ever had. Clubs have begun to flourish all over England for the encouragement of a game recognised as a first-rate contribution to the health both of body and of mind. I am proud to have had some small share in that development, because fencing has a secondary value almost as high as that of its own fascinations. With court tennis, it is almost the last game which preserves the courtesy of the old days in its temporary antagonisms. It chiefly depends upon the chivalry of instant acknowledgment for the scoring of hits. And it calls forth a very high manifestation of that curious mixture of reserve and daring which is the hallmark of the fighting Englishman.

THEODORE COOK.

## THE GREATER WHITETHROAT

THIS bird is one of the commonest of our summer migrants. My earliest notice is on March 29, but I have only twice seen one in March. I have more than once seen it late in October. The third week in April is the time for it to arrive in numbers. The majority have left before mid-September. For the first few days after arrival it is silent; then, if the weather is mild or warm, its song will be heard everywhere. Moreover, it has a curious flight which very quickly attracts attention. This flight is more or less in the shape of an inverted V. It flies in very jerky motion up one arm of the Λ, as up steps of a ladder, and then drops down the other arm in little jerks: it also utters its song during the flight. In size and shape it is rather like the lesser whitethroat, but a field naturalist has no difficulty in distinguishing which bird he sees. The lesser whitethroat is far less likely to show itself in the open than the greater; also the song is different; it also chooses a different situation for the nest, which is very unlike that of the greater whitethroat, a remark which also applies to the eggs. Both birds use the same food for themselves and their young.

The greater whitethroat sometimes, in a very favourable season, starts nesting in April, but it is rarely that eggs are found in that month. The end of the first week in May is usually time enough to start looking for eggs. My own opinion is that the male starts building the nest; often two or three nests are begun, and the female makes a choice and then helps to finish the nest selected. (The cock usually sings a little every time he is on the way to the nest with material, and I find a large number of nests by hearing this song as I am walking along the fences.) I have seen the real nest and two 'mock' nests within a space of five yards along the side of a ditch. The favourite site is in a small bush growing up in a bunch of nettles, whence the bird is often called the nettle-creeper. Occasionally the nest is actually in coarse herbage, unsupported by bush or stick. Sometimes it is built in a fence, and I have seen one in a fence too high for me to reach from the ground. The height of the nest may therefore vary from a few inches to seven or eight feet from the ground.

The materials are usually parts of nettle stems or coarse dead and dry grass, lined with a few hairs, black horsehair being preferred. Sometimes a ' decorated ' nest is built. In this case the materials are the same, but in addition seed-pods are added : most of these are the seeds of one of the elms ; some of these pods burst and the fluffy material that surrounds the seed comes out. A nest with a number of these burst pods, looking at a short distance like little tufts of wool among the material, is a very pretty sight. These decorated nests are not often used, even if completed, lining and all, but an ordinary nest is made quite near the other. This year I was greatly interested to find a very fine decorated nest constructed in a reed bed, and only a few feet away another equally fine nest containing three eggs. These nests both had the fluff from willows in them, as well as unburst seed-pods of other trees. They must have been the work of the same pair of birds, and the nests were so very much alike in every way, sites and all, that it is a puzzle to know the deciding factor in the choice.

The eggs vary very much. The ground colour ranges from white, tinged with yellow, to a very distinct yellow. The spots vary from pale yellow-brown to deep greenish-black, and, in my opinion, usually have a greenish tinge. They are often in a distinct zone at the large end, and the egg is lightly spotted elsewhere : sometimes the spots are more evenly distributed, but perhaps lie rather more thickly on the large end. Occasionally the spots are so thickly and evenly distributed as almost to block out the ground colour, as in the eggs of the sedge-warbler. In fact I have once or twice found eggs so like a pale type of sedge-warbler's eggs that I have had to revisit the nest to identify the bird, although the sedge-warbler's nest is quite unlike that of the whitethroat. Other eggs sometimes are very like certain types of garden-warbler : in one case I visted the nest several times before I could get a glimpse of a very shy bird. This was a particularly interesting case, as all the eggs were infertile, and this happens often when a set of eggs is very far indeed from a normal type. I have found several sets of greater whitethroat's eggs in which all the eggs proved to be infertile. In one case all the eggs were porous, and the contents had dried up into hard solids which lay against the shells.

The most common number of eggs is five : four is fairly common, and six by no means rare. Once only have I seen seven. Some seasons six is common ; in 1922 I found several nests with six. In 1926 the first nest I found eventually had six eggs, and I must have seen at least thirty nests with full sets before I saw another six. The bird is sometimes double-brooded, but oftener by far single-brooded. The second layings—and by this I mean that the bird has raised a brood and not been robbed—usually

only contain three or four eggs, but five is not rare. The interval between the first brood leaving and the beginning of the second laying is very short, being often under a week. It would be interesting to know whether the cock builds the second nest for the hen to complete and use and then takes over the care of the first brood as long as they need it; probably, as they mature so quickly, they can fend for themselves when they have left the nest a week.

The incubation period is approximately twelve days, but there is a range of nearly twenty-four hours on either side; incubation does not begin until the last egg is laid. The male—sometimes, at any rate—takes a share in the incubation.

The young when hatched have no down: the mouth is yellow, becoming pink towards the back; the flanges are pale yellow. The tongue has two dark marks on the spurs and two dark pink spots towards the tip. The young birds are of course blind, and the eyes do not begin to open until the fifth day. By this time many of the quills are through, and the birds are ready to leave the nest any day after they are eleven days old; if suitable food is easy to get, they may leave the nest on the eleventh day, but I have known them still to be in the nest on the fourteenth day.

Both parents help in feeding the young, and both will brood over them. The food brought chiefly consists of small smooth-skinned caterpillars; but there is considerable variety in the way of small moths, spiders, crane and other flies, and occasionally there are small worms and wireworms. One of the most interesting points in watching nests from a 'hide,' four feet away, is the variety of food brought. Some of the items are so unexpected. In a nest that I watched in July 1926 there were only three young (a second brood), and meals averaged twenty to the hour—that is, each bird got a meal about once in nine minutes. This seems rather a long time between meals, but the weather often made it necessary for the birds to brood when they should have been getting food. These second broods seem to hang about the parents after leaving the nest longer than the first broods.

Although the whitethroat is first and foremost an insectivorous bird it will turn to fruit quite readily. I have watched it eating raspberries, currants, peas and cherries. I have heard this bird called the cherry-pricker. I have watched garden-warblers eating big ripe Orleans plums, but I have never seen the whitethroat transgress in this way. On one or two occasions I have seen the old bird bring small red berries for the young, but I have never been able to identify the fruit with any certainty; they may possibly have been red currants.

During the nestling period the nest is kept most beautifully

clean; in fact when the young have gone it is very difficult, from the appearance of the nest, to say whether the nest has been used or is just ready for eggs. The shells are removed from the nest so carefully that at best only microscopic remains are left. The dung of the young is swallowed for the first three or four days; after that it is carried away and dropped. The young are not brooded at night after they are fairly well fledged, but the old birds, particularly the hen, brood or shelter them from inclement weather, such as heavy rain or hot sun, during the day. Also the hen broods for an hour or so before leaving them for the night. The young are unable to digest the skins of caterpillars and some of the other food brought. This indigestible matter is thrown up in the form of pellets, which are invariably swallowed by the parent birds, who take them from the gapes of the young. I have therefore never had a chance of examining such pellets, as I have never seen one thrown up into the nest.

Once the moulting has started there seems to be no second song period. This moult takes place for the most part during August. During this month the birds are to be seen very often in the grain fields procuring food from insects on the weeds at the bottom of the grain. While the grain is being cut they flit to the hedge, when the machine disturbs them, with a curious jerky flight; after the machine has gone by, back they come to the grain again with the same flight. Many a time have I seen the slight movement among the stalks of corn, caused by the bird changing its position, deceive a spectator into thinking a rabbit was present, and have laughed at the look of disgust on his face when the whitethroat showed up.

How will this bird fare now the little owl is getting so plentiful? I fear that it will decrease in numbers, for I now see several nests emptied of young birds each year. I have many times seen shrikes take young whitethroats, and it often figures on the bill of fare of the sparrowhawk. The whitethroat is said to be one of the commoner victims of the cuckoo. My experiences in this direction are interesting, and tend to show that it is more of a chance victim—that is, the cuckoo utilises the whitethroat of necessity, because it cannot find a nest of the species it is in the habit of victimising, and the whitethroat is the first nest the cuckoo can find. The first cuckoo egg I ever found was in a whitethroat's nest, but I did not find another whitethroat victimised for more than twenty years. Then, with a friend, I found two cases only a few yards apart. One cuckoo egg was alone, deserted by the whitethroat, I feel sure. The second was with three whitethroat eggs and hatched, but the young one perished later, from what I am ignorant, but I suspect desertion again. This, I fancy, was the only genuine whitethroat cuckoo I have

ever had experience of, for both the cuckoo eggs were very obviously from the same bird. In this case there were some very interesting points that developed later. Short as the cuckoo's incubation period is, that of the whitethroat is shorter. In this particular nest the young whitethroats got nearly two days' start in life, and the young cuckoo ran a very great risk of being smothered. However, it survived, but was unable to eject the young whitethroats until they were about six days old, and they were then very quilly indeed. A day or two later the cuckoo was dead in the nest, and I fancy that the whitethroats had deserted it.

On one occasion I found a cuckoo egg in a half-built whitethroat's nest, and the whitethroats, of course, did not proceed any further with building operations at that nest. On another occasion I found a nest containing three whitethroat eggs and a cuckoo egg: this nest was obviously stale and may have been a case of desertion; however, it was an unusually open nest, so it is possible that the bird had been scared or captured by an enemy, although there was no sign of the latter possibility anywhere near the nest. Only once have I seen a cuckoo reared from the egg by a whitethroat, and prolonged and repeated searches in the neighbourhood during that summer and the next did not reveal another: I conclude, therefore, that that case was exceptional. That particular young cuckoo was about the finest I have ever seen.

J. H. Owen.

## *THE INVESTIGATION OF CANCER*

### II

As a result of this new course, cancer research passed out of the fog of inconclusive arguments and ill-founded speculations into the clear light of an experimental science. Every statement, every hypothesis, every claim to a cure or treatment, could now be tested. Most of them were found wanting and were thrown overboard. And the magnitude and uniqueness of the problem was only now being realised.[1]

Cancer cuts clean across our general conceptions of disease. Generally speaking, there are two groups of disease. There are those that are directly due to germs, such as tuberculosis, measles, diphtheria, typhoid fever. In these the germ is the direct and the specific cause of the disease. The disease arises in man when the germ is introduced into the healthy organism either by contact with an infected person, as in measles, or by the ingestion of infected material, as in typhoid fever, or when the specific organism enters through a wound, as in a septic abscess. Many of these diseases can be transmitted to susceptible animals by the experimental introduction of the specific organism or of infected material. Such experimental transmission to animals reproduces the natural origin of the disease in man. The second group of diseases is that to which such conditions as heart disease, Bright's disease of the

[1] At present a number of independent centres for the investigation of cancer exist in this country: in London there are the Imperial Cancer Research Fund, the Middlesex Hospital and the Cancer Hospital; in the provinces the University of Liverpool, the Christie Hospital in Manchester, the Cancer Hospital in Glasgow, and quite recently the University of Leeds, have established cancer research centres. All these are independent institutions established by private endowments. Similar institutions exist now in almost all civilised countries, and mankind has reason to be grateful to those without whose far-sighted generosity the work would have been impossible. Until recently the Government had taken no active part in the work. But a few years ago the Medical Research Council established a separate department for cancer research, and the Ministry of Health has set up a number of committees to consider certain aspects of cancer. The British Empire Cancer Campaign is an organisation recently formed for the collection of funds, with which it supports the investigations of individual workers working in hospitals or other institutions.

kidney, and diabetes belong, and is due to a change or damage in a definite organ. They arise *de novo* in each individual; they cannot be transmitted from man to man, or from man to animals, or from animal to animal. They are not infectious or contagious, and, although bacteria may be concerned in producing in one particular organ the damage which leads to the disease, their action is not specific. In fact, in the majority of such diseases we do not know how they arise, nor can we produce experimentally the disease as it occurs in man. The experimental investigation of cancer showed that this disease does not fall into either of these two groups. It is not infectious or contagious, but arises *de novo* in each individual, and, although the disease affects the whole vertebrate kingdom, it cannot be transmitted from man to animals, or from an animal of one species to one of another. It can only be transmitted experimentally under exceptionally suitable conditions from an animal of one species to another of the same species. But for cancer the experimental transmission does not reproduce the origin of the disease in each individual. What happens when a few cancer cells from the growth of an individual animal A are introduced into another healthy animal B of the same species is that these cancer cells continue to grow out of their own resources. They remain the cells of the individual A growing in the individual B. They do not infect the cells of the individual B and transform them into cancer cells. When they are removed by operation after they have grown in B sufficiently long to produce a large tumour, the animal B remains perfectly healthy and does not have a recurrence of the disease. It is the certainty with which this fact has been established by experiment that makes it possible to-day to say that cancer in its early stages is a curable disease.

The process of transmission is thus one of grafting, and very much like the grafting of a part of one plant to another. By using this method it became possible to study the mode of action of therapeutic measures such as radium and X-rays. It could be shown that variations in diet did not profoundly affect the growth of cancer, although the contrary had been and is still being asserted. It was found that an animal could be made resistant against transplantation, so that the transplanted cancer cells would not grow in such animal, and this phenomenon has been and is still being studied in the hope that it may be capable of therapeutic application. Another result of the experimental method for which the public has reason to be grateful is that it put an end to quackery in cancer. Cancer has always been the happy hunting ground of the quack. A disease that takes several years to run its course, where the fatal issue is sometimes delayed by temporary remissions occurring spontaneously, where diagnosis

is uncertain without operation and microscopic examination, where the conscientious medical attendant must warn his patient or his friends against the danger which threatens him and thus commit himself to an unfavourable prognosis, offers golden opportunities to the uncritical enthusiast and the unscrupulous quack. The public has curious notions about the rules and regulations which govern the conduct of medical men, and an equally curious liking for the individual who refuses to be bound by them. As far as I can judge (not being in practice), these rules and regulations have as their main object the protection of the public. A medical man who claims to have discovered a successful treatment for cancer or any other disease must disclose the evidence on which this claim is based. Otherwise it would be impossible to test his claim. In the past a treatment on cancer could only be tested on human patients, and several years had to elapse before a judgment could be formed. With the experimental material which now became available, it was possible to conduct an investigation more conclusively and in a shorter time.

As has been stated, the experimental transmission does not throw light on the origin of the disease. The next task was therefore to find out how the disease arises. This was accomplished by Professor Johannes Fibiger, of Copenhagen, in an investigation which Dr. A. Leitch has justly described as ' the greatest contribution to experimental medicine in this generation.'

The discovery began with the accidental observation in three rats of cancer of the stomach. Microscopic examination of the sections showed within the tumour a peculiar mass, which, after a somewhat laborious investigation, Fibiger identified as a small worm of a characteristic structure. The question arose in Fibiger's mind whether the presence of this worm had anything to do with the occurrence of the cancer. He looked for it in other rats, but after examining more than a thousand animals he had found neither worm nor tumour again. Then came a search through the literature to see whether the occurrence of such worms had been noticed before. A statement was found that the stomach of rats could be infected with such worms by feeding them with the common cockroach (*Periplaneta orientalis*), which was stated to harbour the larval forms of these worms in its muscles. Relying on this statement, numerous experiments were carried out ; but again neither tumour nor worm could be found.

The final success cannot be better given than in Dr. Leitch's account :

> When the sustaining hope was almost gone he heard of a large sugar refinery in the town where both rats and cockroaches swarmed. The cockroaches were of a different kind here, they were *Periplaneta americana*,

uncommon in Northern Europe. An examination of the rats revealed many cases of gastric tumours, and in them the long-sought-for worm was found. A false clue, and a stroke of fortune that was bravely deserved, led him to the great discovery. The cockroaches had come in consignments of sugar from the West Indies, in their muscles were the coiled-up larvæ of the worm, and when the cockroaches were eaten by the rat the larvæ were set free and developed in the stomach into the adult worm.

By feeding cockroaches with the ova of the worm and then feeding rats with the bodies of the infected cockroaches Fibiger succeeded in inducing cancer of the stomach in the rats. An American writer in giving an account of this work says, 'the acuteness of observation, the "prepared mind," fertility in method of attack, patience in obtaining data, courage in the face of failure, judgment in drawing conclusions, all contributed to this really great investigation.'

Fibiger recognised that the worm was not the direct specific cause of cancer. It presumably acted as a source of irritation to the cells of the stomach. Following this clue, two Japanese investigators, Yamagiwa and Ichikawa, undertook to find out whether cancer can be made to arise in the skin of a normal animal by inducing a process of chronic irritation locally by means of a chemical irritant—namely, tar. If a drop of tar is applied to the skin of a mouse or a rabbit, always at the same spot, two or three times a week for four or more months, that particular part of the skin will become cancerous after a period varying in the mouse from four to eight months. The term 'chronic irritation' is a vague term, but it is deliberately vague. There are many forms of chronic irritation which do not lead to cancer. On the other hand, chronic irritation leading to cancer can be induced experimentally by many different agents which have nothing obvious in common. There are chemical agents such as tar and shale oil, there are physical agents such as radium and X-rays, and there are living agents: certain worms which live as parasites in an animal, and through the irritation they produce in the healthy tissues of that animal, give rise to cancer. In man, also, such agents have been known to produce cancer. It has long been known that in chimney-sweeps cancer of the skin is exceptionally frequent as the result of the irritating action of soot; a similar condition has been known to occur among tar and shale oil workers; mule-spinners' cancer is the result of the irritating action of lubricating oils with which their clothes become saturated; anilin workers develop cancer of the bladder; in Kashmir the wearing of a basket containing hot coals strapped round the waist often produces a chronic burn which may develop into cancer; the worm *Trichina spiralis* may infect man as the result of eating smoked but uncooked pork infected with this worm,

which then wanders into the muscles of the body and may give rise there to cancer.

Now, as already stated, these very different conditions have nothing obvious in common except that they produce at one particular spot a continued damage to the healthy cells. If the damage is too slight, no cancer arises; if it is too severe, again no cancer arises, because the damaged cells simply die off. One cannot, therefore, say that chronic irritation is the direct *cause* of cancer. It is more correct to say that it is a condition which *induces* cancer. This induction of cancer is a slow process; in the mouse it takes from four to eight months, and, since the normal span of life of a mouse is about three years, the period of induction occupies from a ninth to a fourth of its normal span of life. In man it takes from ten to twenty-five years as a rule, a period which is much longer, but is the same in proportion to the longer human span of life. This explains why cancer is mainly a disease of middle and of old age. Life is one chronic irritation after another. It is only if one of the numerous irritations to which we have to submit has been allowed to act locally for a period of many years that cancer may develop at that site.

But fortunately different individuals do not respond with equal readiness to chronic irritation by developing cancer. The experimental investigation of the process has shown that animals kept under identical conditions and subjected to tar painting vary greatly in the readiness with which they develop cancer. In some individuals the disease develops much sooner than in others, and there are always a number of animals in which it does not arise at all. This is a very important and hopeful fact. For it indicates that there are systemic factors which determine the local changes leading to the development of cancer. The study of these factors may make it possible to influence the organism in such a way as to make it less susceptible to the development of cancer. Another important result having a similar significance is the observation made by Dr. J. A. Murray that an animal in which cancer has first been induced by tar painting and then removed by operation has become much less susceptible to the second induction of cancer by further tar painting. *A priori* one would have expected the opposite result. The fact that the disease arises in an individual picks out the individual as susceptible to cancer. Removal of the disease by operation would therefore leave the cured individual susceptible to the danger of developing the disease a second time, but fortunately that is not so.

Since the disease can now be induced at will experimentally, it is possible to follow the changes which occur in a normal tissue when it becomes cancerous. When chronic irritation is applied to

the skin certain definite changes take place, which will regress spontaneously if the process of chronic irritation is applied only for a short period. Then no cancer develops and the skin returns to its usual condition. But if chronic irritation lasts for a longer time the disease appears after a varying period. Something happens at a certain moment that turns a normal cell of the skin into a cancer cell. What is this something?

There have always been in the past two schools of thought: one school held that cancer was the result of an extrinsic agent—a germ—which produces cancer as its specific disease as the diphtheria bacillus causes diphtheria, or the bacillus of tuberculosis causes consumption. The experimental evidence which has accumulated has made it quite clear that such a view is untenable. The second school of thought looked to an intrinsic factor for an explanation. As stated at the outset, the cells of the healthy body are individual living units, but their activities are controlled in such a way by inhibitions and stimulations that the activity of the individual cells appears directed toward the well-being of the organism as a whole. How this is brought about in the normal organism is as yet an unsolved problem of physiology, but its solution must clearly be found in the internal mechanism of the cell. Since a cancer cell has freed itself from these controlling inhibitions and stimulations, the only alternative explanation which seemed to offer itself was that cancer was due to some change in the internal mechanism of the cell. The most careful search for any alteration in the finer structure of the cancer cell has, however, failed to show any consistent alteration. The only evidence in support of such a view has been brought by the recent work of Professor Warburg, of Berlin, who has shown that the cancer cell can live in the absence of oxygen. A cell is in some respects like an engine. It requires fuel to keep it going. The main fuel is sugar, which is burnt by the normal cell and transformed into carbonic acid and water. The cells of higher animals obtain their energy by such a chemical process of combustion. But there are lower forms of life, such as yeast cells, which can live either in the presence of oxygen, when they burn sugar, or in the absence of oxygen, when they ferment sugar—a process which does not require oxygen. Now Warburg found that the cancer cell can, like a yeast cell, live in the absence of oxygen and ferment sugar instead of burning it. This explains why cancer cells can live under the very unfavourable conditions, such as an inefficient blood supply, under which they are often found. But it does not yet satisfactorily explain why they grow.

The recent work of Gye offers a very different explanation. It is an ingenious compromise between the intrinsic and the extrinsic theory. Gye holds that in the causation of cancer there is con-

cerned an extremely minute germ—so minute that it passes through the pores of a filter which holds back all visible germs, and that it can only be seen with the highest power of a microscope specially constructed by Mr. Barnard for the purpose of studying these very minute 'filterable viruses,' as they are called. We know that such diseases as small-pox, foot-and-mouth disease, and the mosaic disease of plants are due to different forms of such filterable viruses. According to Gye, the virus of cancer by itself is innocuous and unable to produce cancer. It requires an accessory factor by which it is enabled to enter into a normal cell and transform it into a cancer cell. By the process of chronic irritation the cell is stimulated to produce this accessory factor, and thus becomes susceptible to the attack of the virus of cancer. This conception therefore involves two causal factors: an extrinsic one (the virus of cancer) and an intrinsic one (the special activity of the cell). Gye's conception is based upon experimental evidence which has been subjected to critical examination by a great many different workers. Some have confirmed part of his observations, while others have obtained negative results. The subject is therefore *sub judice*. But Gye's conception has the great merit that it is the first theory of the disease which explains all the essential features of cancer, and which correlates a number of observations which have hitherto seemed contradictory. All previous theories of cancer have failed in that respect, and it is significant that of all the criticisms to which Gye's work has been subjected not one has indicated where the explanation is theoretically inadequate.

If this account has succeeded in conveying an idea of the complexity of the condition which is comprised under the term 'cancer,' it is obvious that the fight against cancer involves a good deal more than the search for a 'cure.' The Shavian doctor with his slogan 'Advice and medicine sixpence, cure guaranteed,' knew what the public wanted. But even Mr. Shaw did not present him as believing in his 'cures.' There is no disease where a cure can be guaranteed. In every case the efficacy of the treatment depends upon the stage of the disease at which it is applied. Even such an ideal, logical 'cure' as diphtheria antitoxin, which consists in the reinforcement of the normal defence of the body against the disease, is certain only when it is applied in the early stages of the infection. The trend of modern medicine is first towards prevention and then towards an early recognition of disease. In cancer one problem which is always with us is the early diagnosis of the disease, since this is more difficult in cancer than in any other disease. Many attempts have been made to devise a diagnostic test, but none of them has so far been found sufficiently reliable. Some of them have been purely

empirical; others have been based on a conception of the disease of doubtful validity. It is reasonable to expect that a fuller knowledge will lead to the discovery of such a test.

Twenty-five years ago the statement that cancer may be a preventable disease would not have been considered as a reasonable proposition. To-day, since we know that certain forms of chronic irritation lead to cancer, it is a promising line of inquiry to find out whether neoplastic disease of this or that site is the result of some specific form of chronic irritation. By eliminating it, it would then be possible to prevent cancer of that particular site. So far this has been done in the so-called 'occupational cancer,' such as shale oil cancer or mule-spinners' cancer, where the sources of the chronic irritation are obvious. Reference has already been made to the evidence of the existence of a definite susceptibility to cancer, which presupposes the existence of a definite resistance to cancer in those individuals who do not develop the disease. The study of the factors determining resistance and susceptibility opens up another line of attack. Investigations are on foot for the production of drugs or sera which, while able to destroy cancer cells, are not toxic to the normal cells of the body.

The extraordinary effect of X-rays and radium on living cells, both normal and cancerous, is as yet ill understood. A study of this action is likely to extend the usefulness of these powerful agents in cancer. The recent death of Dr. T. S. P. Strangeways, who had made this line of inquiry his special study, and who after many years of preliminary studies had developed a special technique for this investigation, is a terrible loss to radiology. A few weeks before his death he said in the course of a discussion with a colleague, 'One is just beginning to see daylight.' His death is a reminder that progress in cancer research is dependent on the efforts of individuals who do not look for sensational discoveries, but are content 'to do their bit' without adequate reward, in the sustained conviction of a successful issue which they themselves may not live to see.

W. CRAMER.

## *THE PROBLEM OF THE GLOBULAR CLUSTERS*

SOME thirteen years ago Professor Eddington, discussing the size and the structure of the universe of stars, confirmed the then generally accepted conclusion that our sun is roughly central in the visible universe; that the distance of the Milky Way is of the order of 3000 or 4000 of those units of astronomical distance (the parsec), which we need not for the moment stop to define; and that a certain distance of 10,000 parsecs was the largest distance he had occasion to mention.

About six years later it was stoutly maintained by Dr. Shapley, then of Mount Wilson, that our sun and all the stars that we had been accustomed to think of as forming the visible universe, including within that term all the stars of the Milky Way star-clouds, are but a subordinate system far away from the centre of the greater universe defined by the globular clusters of stars—a universe whose diameter is of the order of 150,000 parsecs, and whose centre is some 70,000 parsecs from us, or seven times the distance which Eddington had referred to as the greatest he need mention only six years before. In those six years the size of the universe was increased some ten times, and we were removed from its centre to its outer borders.

Yet another few years, and we are back again more or less in the central regions of a universe at least ten times vaster still. A year or two ago Dr. Hubble, also of Mount Wilson, showed by methods that are equally valid that the largest and brightest of the spiral nebulæ are of the order of 300,000 parsecs away, and the smaller at distances presumably much greater still. Compared with this universe of the spiral nebulæ, that of the globular clusters is a poor little thing, and whether we are near its centre or upon its outer edge matters little to our conception of what small pride of place remains to us in a system that is multiplied by ten in scale or by 1000 in volume every five years or so.[1]

[1] Dr. Hubble has now sprung upon us a new surprise. In a recent *Astrophysical Journal* he takes the most prodigious leap that has ever startled the pedestrian astronomer. The faintest nebulæ within reach of the 100-inch mirror are of the eighteenth magnitude, and their distance is 43,000,000 parsecs. There are 2,000,000 nebulæ, more or less, at an average distant apart of about 600,000 parsecs: 2,000,000 universes of the order of magnitude of our old universe that

The observations that led to these remarkable extensions of our ideas began about the year 1916; they were all made at the same observatory, the Solar Observatory of the Carnegie Institution on Mount Wilson, near Pasadena, in California. Here the genius of George Ellery Hale has constructed the most powerful equipment that has ever been turned on the problem of universe structure. With a talent for discovering younger talent to work with him, and a generous disposition to allow them all freedom in work and publication, he has started so prodigious an activity there that there has been nothing like it before in any field of scientific inquiry. Other observatories may plug away and do the essential grind on well-laid lines; but the exciting things are done at Mount Wilson. That observatory alone is responsible for extending the scale of the known universe by at least a hundred times in the ten years 1914 to 1924, and by another forty times since last Christmas. For a brief period about 1921 the Mount Wilson results for the globular clusters made the material for a fine stimulating controversy with the Lick Observatory on Mount Hamilton touching the question of island universes. Then the advance swept over them, and in the excitement of the chase after spiral nebulæ the peculiar significance of these clusters has been a little disregarded.

The globular clusters of stars have the unique peculiarity that, with the enormous advance of telescopic power, no more are ever discovered. Somewhere about ninety were known to the Herschels, father and son, the best part of a century ago. One or two of those turned out to be spirals and are rejected from the list of clusters; perhaps half a dozen in all have been added to the list by the combined efforts of all the astronomers since, with all the advantages of bigger telescopes and the penetrating sense of the photographic plate. A dozen faint satellites, hundreds of minor planets, hundreds of thousands of nebulæ, millions of stars, have been added to the known content of the universe, but the population of globular clusters remains about ninety—a fact so remarkable that it is strange how little attention it has received.

Moreover, this small population has a very curious distribution: it is almost confined to one half of the sky—a fact which I was, so far as I know, the first to remark, about 1911, in the course of a study on universe distributions by plotting the projection of the sphere on a circumscribed cube. Star maps so constructed have the great advantage that great circles are all represented by straight lines. When the ninety globular clusters were laid down on this projection it was immediately clear that a

included the Milky Way and all the millions of stars included within its radius of about 3000 parsecs that seemed so mighty a structure but thirteen years ago. We shall want a little quiet time for reflection upon this.

great circle would very nearly include them all. In other words, they lay in one hemisphere of the sky, with its pole in the Milky Way. It is odd that no one had ever noticed it before in all the studies that had been made of distributions—yet perhaps not so odd when one remembers that statistically minded astronomers have always been obsessed with the idea that the fundamental plane in the universe is the galaxy, the mid-line of the Milky Way. The stars congregate to it independently of the star clouds that are concentrated on it. The loose clusters of stars and the peculiar kind of star called by the names of Wolf and Rayet, the stellar gaseous nebulæ, and less strongly the extended, all these are concentrated more or less decidedly on the plane of the Milky Way; and, though it has often enough been disproved, the greater part of astronomers would still maintain that the spiral nebulæ are clustered about the poles of the galaxy, and therefore by an inverted kind of obedience follow the general law of distribution and association. So strongly was this galactic idea entrenched that a distribution, so to speak, at right angles to it was reckoned, by anyone who noticed it at all, no more than disobedient to the general habit. It must have been so, or someone before 1911 would have remarked that the globular clusters occupied almost precisely one half of the sky and avoided the other half.

Now about these globular clusters of stars. The name was invented by William Herschel to describe those clusters so strongly condensed towards their centres that the individual stars can be hardly distinguished in any ordinary telescope, or in any but the very finest photographs made with the most powerful instruments. Unlike the Pleiades or other loose clusters, they give the impression of a great sameness in the magnitudes of the component stars, of a determined clustering together towards the middle, like bees swarming, of a general symmetry and roundness of figure, and of a fairly definable outer limit which seems, however, to be illusory. Hard to describe, they are yet very easy to recognise when the first has been seen, and so there are very few doubtful members on the outskirts of the class awaiting recognition. With globular clusters we know just where we are—for their numbers. There is no danger that a law based upon a present census may be overwhelmed in a flood of new discoveries. Less than 100 in all they have been for nearly a century, and less than 100 they seem likely to remain.

For a long time they had no special known peculiarities beyond their special kind of clustering. Then some thirty years ago it was found that they contained—some of them in great numbers—a peculiar kind of variable star, with a very rapid rise to maximum, a less steep descent, and an extraordinarily short period of

variation—of half a day or thereabouts. To have a star brightening up a magnitude or more—say, getting very suddenly three times as bright every few hours with the regularity of an automatic gas buoy—is one of those unbelievable things with which modern astronomy is richly strewn. These things cease after a while to worry, not because any satisfactory explanation has been found for them, but because there are so many equally unbelievable things to be explained that the faculty for wondering or worrying gets lost.

So long as we had no idea how far the globular clusters are away from us, and therefore no idea of their real size or of their relative importance in the universe, it caused no one any anxiety that their arrangement in the universe was so lopsided, for no one supposed that they made any considerable part of the whole visible universe, or could have any bearing on the question whether our sun's, and with it our own, place in the universe is central or suburban. It might have occurred to us sooner than it did that the globular clusters and their distribution had in them the elements of a surprise. But attention was drawn away to the rapidly increasing and more sensational family of the spiral nebulæ. Whether they were external universes of stars like our own, or possibly even much larger, became an active subject of controversy. The theory of island universes was hotly disputed in the absence of any real knowledge of the essential facts. There were spirals by the hundred, and lesser objects which might very well be more distant spirals by the hundred thousand. The astronomer with a taste for the grandiose had here so ample a field for unverifiable conjecture that it was small wonder the little family of less than 100 got rather overlooked until Dr. Shapley, at Mount Wilson, began to publish that remarkable series of papers about 1916. We then became conscious that the globular clusters had suddenly taken upon themselves a new *rôle* in the scheme of creation. What we had looked upon as small stars were the outstanding giants in a crowd.

It all came about through a long and intricate train of argument started elsewhere: a chain with links that looked weak enough, but proved surprisingly tough when they were tested, and have so far stood every strain. That chain has now dragged us to incredible distances without breaking. It has extended the universe ten times, and again ten times, and, unless there should prove to be some useful but heretofore unsuspected argument against the identity of the smaller white nebulæ with the evident spirals, it is clear that we must accept Dr. Hubbles' invitation to travel forty times as far again before we come to the most distant of these island universes.

The game began, not at Mount Wilson, but at Harvard, when

Miss Leavitt discovered a relation between the period and the magnitude at maximum for the variable stars in the smaller of the two Clouds of Magellan, from which Hertzsprung at Potsdam —or perhaps still at Copenhagen—showed by an ingenious argument that these stars were actually seven magnitudes brighter than the sun, and that the cloud in which they reside is 10,000 parsecs distant from us.

And here we must pause for a moment to consider the units in which we are talking. The distance of the earth from the sun is a convenient unit of measure when we are dealing with the solar system, but inconveniently small for stellar distances, since the nearest star that we know is about 270,000 of these units away. When we are measuring these distances geometrically we take the distance of the earth from the sun as a base-line—or rather as half the maximum possible base—and find what angle a line of this length, viewed squarely at right angles, would subtend at the distance of the star. If that angle—the parallax—of the star were so much as a second of arc, the distance would of course be 206,265 of those units, since that is the number of seconds of arc in the unit of circular measure. This distance of roughly 200,000 times the old unit, or the distance of a star whose parallax is one second, was nicknamed by Professor Turner the parsec—an inelegant but convenient portmanteau word which has to a great extent superseded the popular ' light year,' the distance that light, travelling at the rate of 186,000 miles or 300,000 kilometres per second, will travel in a year. One parsec equals three and a quarter light years.

Now for the unit of magnitude, which is a little more complicated. The ancients divided the stars that they could see into six orders of brightness, and when in our own times the relation of these orders one to another was measured by accurate physical laboratory methods it was found that the value of one step was the ratio $2\frac{1}{2}$ : a star of the third magnitude by the common estimate was two and a half times as bright as one of the fourth. Then, because in the formulæ appropriate to the matter the logarithm of the brightness ratio was always coming in, and it happens that the logarithm of 2·512 is the simple number 0·4, the ratio 2·512 instead of $2\frac{1}{2}$ was by general consent adopted as the light ratio per magnitude—a rather trivial reason in theory, but a very sensible one in practice. It follows that a difference of five magnitudes corresponds to a ratio of 100 to 1 in light.

Until we know the relative distances of the stars we cannot, of course, determine their real differences of luminosity from their apparent magnitudes ; but as soon as we begin to have some knowledge of the real distances of the stars from the sun we can say what the brightness of the sun is in comparison with them,

and we can define the absolute magnitude of a star as the magnitude it would appear to have if it were brought to the standard distance of ten parsecs. Why 10 was chosen instead of 1, after some divergence of practice, is one of those little mysteries that are difficult to unravel. But it does not really matter so long as people are agreed, as they now are. It is generally reckoned that the absolute magnitude of the sun shall be taken as 5. A star 100 times brighter has absolute magnitude zero, while for stars brighter still one has to run into negative quantities. For some reason or other it seems that there is an upper limit to the absolute magnitudes of stars, of about minus 3.

This is the straightforward way of approaching the matter. If you know the apparent magnitude of a star, and can measure its distance, you deduce the absolute magnitude. But, alternatively, if by some means you can know independently the absolute magnitude, and compare it with the apparent, then you have a method of determining the distance which is just as efficacious at the most extreme distances as it is at the lesser. And this is the foundation of the new method that has led in the last few years to such surprising results.

There is a special class of variable stars, not very common in the neighbourhood of the sun, by which we mean of the stars in general within the Milky Way, which is known as the cepheid variables, because the most conspicuous of the class is the star lettered Delta in the constellation Cepheus. By long processes of rather abstruse reasoning, which we can hardly hope to reproduce here, it has been gradually established that these stars are the most gigantic of the giants, with absolute magnitudes running to minus 3 or even 4. There is a fairly close relation between the period and the absolute magnitude, so that if the period is observed the absolute magnitude and thence by comparison with the apparent magnitude the distance can be determined. Starting from the few nearer and tacking on the variables in the lesser Magellanic Cloud, of which we have already spoken, thence to the variables in the globular cluster Omega Centauri, and so to the others, a curve has been established which gives the relation between the absolute magnitude and the period over a fairly wide range, so that whenever the period of a newly discovered cepheid variable is known its distance is readily deduced. By this method the distances of some seven or eight globular clusters have been determined, and they come out of the order of 20,000 parsecs.

In these same clusters there are many stars of the spectral class Type B. It is generally agreed on the evidence of many independent lines of research that the type B stars in the solar neighbourhood are of singularly level absolute magnitude, and

more than 100 times as bright as the sun—giant stars all. If in the above seven or eight clusters the type B stars are compared with the cepheid variables, the same absolute magnitude is derived—or, at any rate, the same order of magnitude. Again, in the neighbourhood of the sun the largest and most luminous stars of all are the giant red stars, of absolute magnitude about minus 2. In those same globular clusters the brightest stars of the whole assemblage are red or yellow; and if we compare them with the cepheid variables, again we get the right order of magnitude. Although, then, the evidence on any particular line may be thought somewhat hazardous, the various lines of argument support one another in a way which is very striking, if only we can be satisfied of the truth of an underlying hypothesis which we have hitherto implicitly adopted, but which we must now explicitly examine. We have been assuming a general uniformity in Nature—some law which keeps individuals more or less true to type and to scale, however widely they may be separated in space.

It is an assumption, and a large one; but we are compelled to admit that experience is all in favour of its being true. When we see a man in the distance, we are justified in estimating his distance by his apparent height, for experience shows that it is improbable that he is less than 5 feet or more than 6 feet 3 inches high. There will be exceptions both accidental and systematic—accidental in Europe, where there are individuals outside this range in both directions; systematic in Africa, where one might make errors of estimation all in one direction in the Congo forest, and all in the other upon the highlands of Ruanda. But these errors at the worst would hardly amount to a systematic miscalculation of 25 per cent.; there is no risk of meeting people of Lilliput or of Brobdingnag upon the earth. We must take this as an illustration rather than as an argument, for it is open to anyone to retort that, after all, the conditions upon this earth do not differ very widely in its different parts, and there is nothing to show the probable size of man if he had evolved upon another planet, while there is good evidence that, at different stages of the history of our own earth, dinosaurs and such-like had gone a long way to establishing a contrary doctrine, against any uniformity in Nature.

In the stars we are not, however, dealing with living creatures slowly developing from one structure to another, and we should seek illustrations of uniformity rather in such questions as the general similarity of composition revealed by the spectroscope, or similarity in size and mass and luminosity determined by the best direct methods of measurement. The spectroscope seems to come down heavily on the side of uniformity. Those same

elements that we can handle upon earth are main constituents of the most distant stars, while there is not any strong spectroscopic evidence that there are in the stars or in the nebulæ any considerable classes of substance that cannot be found upon earth. The tendency has been to run to earth successfully elements that seemed at one time to be absent from it, as helium, which just less than sixty years ago made itself conspicuous to Lockyer in the spectrum of the sun's chromosphere, and now is used to fill airships.

Strangely enough, there does seem to be a great degree of uniformity in the substances which make the stars; or, to be more precise, there is a very wide distribution throughout the whole universe of the elements from which the earth is formed. It is, however, more than probable that there are in the stars, and especially in the younger stars, radioactive substances of very high density that keep up the supply of the stars' energy by gradually wasting away and degenerating into unexciting commonplace bodies, just as uranium degrades into lead—only the fall from the high degree of activity of the stellar components must be a more sensational fall. It does not seem at present that these rather hypothetical bodies reveal themselves in the spectra, or perhaps it would be sounder to say that we have not yet learned to interpret the revelation. There is not, however, any reason to suspect that these primitive massive radioactive elements of the younger stars are distributed any more irregularly than the ordinary elements into which they are gradually transformed or degraded.

Yet we may well admit that it is straining probability to suppose that the same numerical law which connects the period and the luminosity of a curious class of variable stars within the particular neighbourhood of our sun, that is within the old sidereal universe of the solar cluster, is necessarily true in those awfully remote regions to which our observation and argument have recently been extended. On such a matter we will judge according to the make-up of our minds, and much the same difference of disposition that makes one man a Conservative and his brother a Communist will make one astronomer shake his head at the fine extended flights of Drs. Shapley and Hubble, while another will go all the way with them without a qualm and welcome the revolution that they have made in our conception of the universe. The great strength of the modern doctrines of astronomy lies in the absence of any serious contradiction in the conclusions to which they lead, and that is quite the most remarkable fact in the present situation. It may be rash to extend the period-luminosity law of the cepheid variables so far, or to assume that, because the most giant star of the sun's neighbourhood is not much above minus 2 in absolute magnitude, there

are not giant stars in the Hercules cluster 1000 times as bright. We may find no disposition in our own minds to believe that all globular clusters are more or less of the same size, and to base our ideas of the distances of the farther clusters upon that assumption. But the point of our present argument is that these hazardous principles do not involve us in contradiction of much account, and we may be sure that they will eventually do so if they are not essentially correct.

Until such contradictions present themselves we may be content to believe the following surprising figures for the great Hercules cluster—the familiar object that is visible to the unaided eye as a fuzzy sort of star of the fourth or fifth magnitude. It contains within a diameter of 350 light years, or about 80 parsecs, at least 35,000 stars as bright as the sun, and some of them 1000 times as bright. These stars are very strongly condensed towards the centre of the cluster, very much more condensed than the stars in the cluster of which our own sun is believed to form a unit. The distance of the cluster from us is about 8500 parsecs, and it is one of the nearest, and by no means the largest. The cluster No. 3 in Messier's Catalogue is just visible to the naked eye in the constellation of the Hunting Dogs about thirteen degrees north-west of the bright star Arcturus. Its diameter is about 470 light years, according to Shapley ; a negative made by Mr. Ritchey with the 60-inch reflector at Mount Wilson has more than 20,000 star images that can be counted outside the burnt-out centre, where the images are too thick to be distinguished. Within a distance of ten parsecs from the centre there are at least 15,000 stars two magnitudes brighter than the sun. Within a sphere of the same size about our sun as centre there are only four or five stars bright enough to compare with the 15,000 of the cluster Messier 3.

In the old days, before there was any question of measuring the size and the distance and the luminosity of the stars in these globular clusters, one recognised that they were probably crowded, but supposed in a vague sort of way that the stars were small, perhaps on the analogy of the minor planets in the solar system, where the stuff that might have made one big planet has for some reason that we can hardly conjecture gone to make a few thousand little ones. Nowadays, with all these theories of radiation about, it is not so easy to suppose a close multitude of small stars, and now that the spectroscope has shown that most of the stars that we can deal with in a globular cluster are giants rather than dwarfs—and giants are massive as well as bright, since the two qualities go closely together—one has to conclude that in the globular clusters there is very much more mass per unit of space than there is in other parts of the sky. And then we begin to

question the uniformity of Nature, and that leads us to inquire whether it is so certain after all that the laws which we have applied in deducing the distance of these clusters may not be at fault where space is so densely packed with matter; and so we may begin to go round again in a circle of doubt.

It is perhaps a pity that there was not more time to digest the surprising facts of the globular clusters before we were involved in the second extension of the universe, the second multiplication of its scale by 10, that followed from Dr. Hubble's work on the spiral nebulæ. For some years after the great debate between Shapley, of Mount Wilson, and Curtis, of the Lick Observatory, that was held before the National Academy of Sciences on April 26, 1920, there was talk of a dilemma: the former argued that if the clusters were of the dimensions and at the distances which he had determined, the spiral nebulæ could not be island universes, while the latter argued strongly for the island universe theory, and found it in consequence impossible to accept the facts alleged about the globular clusters. It had been a great controversy between the two, and not very easy to follow, because one may say without offence that they were both better astronomers than controversialists. When Hubble removed Shapley's difficulty by proving on strict Shapley lines that the nearest spiral nebula was a million light years away, we seemed to have fallen into the comfortable conviction that the difficulty had been removed; that both were right in the main; and that any trouble about the globular clusters had been straightened out.

It is time to reconsider this comfortable doctrine. The globular clusters are confined to one half of the sky; they are strictly limited in number to about ninety, and no more are ever discovered. Are these two simple facts in any way explained by all this recent work? Not the least in the world. They remain as curious and as unexplained as they ever were, and the more one thinks about them the more uneasy becomes the feeling that they must have a profound significance. They are too numerous to be put aside as exceptional objects that do not matter much one way or the other, yet they are not numerous enough to be treated as common objects of the universe that might be expected to fit in with its general laws. They cast doubt upon the dogma of general uniformity in Nature, upon which the whole edifice of universe theory is built, and that is why the Problem of the Globular Clusters seems to me to have a significance more profound than is sometimes allowed it.

ARTHUR R. HINKS.

## *'ELMER GANTRY' AND THE CHURCH IN AMERICA*

MR. H. L. MENCKEN and Mr. Sinclair Lewis are the twin scourges of American life. A book by the author of *Babbitt*, dedicated with profound respect to H. L. Mencken, has a claim to be read with care by all who study America. With the approval of his comrade, Mr. Sinclair Lewis has now taken the Church for his field of observation. In *Elmer Gantry* he drags into the light all the shameful things which he claims to have discovered. There are, it is true, glimpses of the more excellent things; but for the most part the author is like one who turns over a venerable stone and lets the world see the crawling creatures beneath.

Wednesday after Wednesday during last summer the ministers of Kansas city lunched with Mr. Sinclair Lewis, and answered his questions. Clerical gentlemen are not always at their best in such encounters; they have been known to show off in the presence of laymen. But there were other sources of information open to him. It is stated in the book that between the 'eighties and the early years of this century—a somewhat indefinite period—there were 5000 convictions in the courts against the clergy and ministers of the United States. The figures are of no great value till they are analysed; but the 5000 must be set up against over 200,000 ministers in the Protestant churches. Among such police court annals there must be material for a satirist; and the Press will yield its harvest. Mr. Sinclair Lewis has taken immense pains with the details of his picture, and, as all the world knows, he has a quick eye and a mordant pen.

But he is not concerned with the Church as though he were a calm and dispassionate onlooker. He is a moralist who is in a white heat of wrath against the hypocrisies which he has detected. He takes his whip in hand and lays about him with fury. The book suffers for this very reason. It sets out to be realistic, but it proves to be the work of an idealist, who selects his material at the bidding of this one central idea, that American church life in large sections of it is corrupt. His purpose colours his selection. It would be a serious error to take him as an authoritative judge

of the American Church: it is almost as serious an error to ignore the section which he has set in clear relief.

Elmer Gantry as the curtain rises is discovered eloquently drunk. He is a student in a Baptist college. By various events and plots he is tricked into what is taken to be an experience of conversion; afterwards, stimulated by whisky, he has a call to the ministry. 'A curious smell of peppermint he has about him,' one member of the staff remarked after he had narrated the call. While he is training in his theological seminary he acts as pastor of a village church, and begins his Don Juan career without delay. Some time as a commercial traveller, a spell as a member of a touring troupe of evangelists, serving under Sharon Falconer, who unites Eastern cults with Christian evangelism, and a keen business instinct, another episode in the service of *Victorious Thought*, and then the crowning experience of his life in the Methodist Episcopal Church. In this Church he rises to the pinnacle of a New York pastorate and the secretaryship of a national society. But to the end he is still the same lascivious animal, devoid of honour and decency—an animal in whom there is no trace of aspiration or struggle.

He enters the scene as a drunken libertine; the curtain falls upon him the adored minister of a crowd of worshippers, but a libertine still.

It is claimed by Mr. Mencken that this book has added a new word to the language. A minister who betrays his holy office, it is presumed, will be called an 'Elmer.' But a protest should be made before that name is adopted. The man is himself a personification of all that Mr. Sinclair Lewis has seen to hate most in the selected records of degraded ministers. He is a colossal phantasy, so unreal that he ceases to have any human interest. The very virtues which are often found in men of strong and unsubdued passions are wanting in him. He has neither courage, nor generosity, nor ordinary human kindness. It is safe to declare that there never was an Elmer Gantry in the Baptist or any other ministry. Professor William Lyon Phelps, of Yale, writes: 'I know something of Baptist ministers. My grandfather and father were . . . all my living brothers are Baptist ministers, and there has been a constant string of Baptist ministers walking through my house for years, and I have never known one like Elmer Gantry.'

The study of this loathsome creature, however, is but the main thread of a book which has many subsidiary studies of far greater value. So many are these, and so varied, and so carefully selected, that it must have been in the mind of the author to throw light upon the American Church as a whole. If he takes the ministry for his chief subject, for him it is true 'like priest,

like people.' A Church in the end has the ministry it deserves. It is clearly designed that the reader shall pass a verdict, not upon one group or section, nor even upon the ministry, but upon the condition of the Christian Church as a whole.

There is much in the picture which will be accepted as true by all who have studied the Church in America. The place which the Church and its ministry have in the life of that nation is rightly estimated. The Church is still an institution which is central to the life of all American communities. Church membership includes 43 per cent. of the whole population. Even if many attend the services but rarely, they support the Church, and rank themselves among its members. The part that the Baptist church of Paris, Kansas, filled in the life of Elmer is described in detail:

> The church, the Sunday school, the evangelistic orgy, choir-practise, raising the mortgage, the delights of funerals, the sniggers in back pews or in the other room at weddings—these were as natural, as inescapable a mould of manners to Elmer as Catholic processionals to a street gamin in Naples. . . . He had perhaps got everything from the church and Sunday school except perhaps any longing whatever for decency and kindness and reason.

It might occur to the author to inquire if there was nothing left in that village of that eager faith which led the fathers of these churches to establish these societies wherever they cleared a dwelling-place for themselves. The story of the advance of the Baptist churches, keeping pace with the swift treks of the settlers, is one of heroic faith. In 1794, for example, Samuel Payne struck the first blow with his axe into one of the trees of the forest where now is the city of Hamilton. After that first blow he knelt and prayed that there might be a Baptist church in the town. The church was organised only two years afterwards, and the farm of 120 acres was given as the site of an educational institution which became Madison University. It was because there were such daring pioneers in the early years of the nineteenth century that the Church is now in possession. Much may be said to belittle such men. Caricatures may be drawn of them. Their theology was crude; they delighted in such books as *The Day of Doom*, in which the Judgment Day was luridly foretold; but they did not accomplish their great deeds on a capital of ignorance, superstition and bigotry. Nor is it at all likely that the Baptist church in Paris, Kansas, had only such gifts to offer to Elmer.

Brother Bains, a member of another Baptist church, sets forth what, according to this author, is the mind and temper of these rural Baptist churches: 'If you don't believe in the virgin birth and the resurrection, atonement and immersion, you are bound to go straight to hell, and not no make-believe hell, but a real gosh-

awful turble bed of sure-enough coals!' That Brother Bains exists it is impossible to deny; but that the village Baptist church in the Middle West can be understood in its origin and in its permanence from a study of such a man it is impossible to believe. The Baptist communities in the United States number well over 8,000,000 members. Something more is needed to account for the uprising of this host. A study of merely external things, or of the crude and foolish beliefs which gather around and obscure the cardinal and positive beliefs, by which the soul of man lives, will never explain such facts.

It is hard for a British student of the American Church to adjust himself to the proportions of the Churches. In making a study of American religious life in its popular phases Mr. Sinclair Lewis is right in selecting for his chief attention the Baptists and the Methodists. Each of these bodies numbers over 8,000,000 members, and each must have within its range 20,000,000. There is no parallel in the United States to the Anglican Communion as it is in England. There must be nearly eight Baptists for every Episcopalian. It is therefore true to the proportion of things that the hero of the book is made to minister first to the Baptists and afterwards to the Methodists. The drift of popular religion in America can be judged more surely from these Churches than from the others. At the same time it must be remembered that other communions have an influence upon the thought of America out of all proportion to their numbers.

Little mercy is shown for the denominational colleges and theological seminaries. It is even hinted that there are scarcely a dozen 'authentic' scholars engaged in the work of training the ministry. This is clearly a statement which can only be justified by an exacting definition of 'authentic.' It is true that presidents are chosen sometimes for theological institutions on the understanding that their chief task is administration and the raising of funds. Dr. Willoughby Quarles no doubt exists, with his voice very deep and owlish, 'a noise somewhere between the evening bells and the morning jackass'; 'he had lived in tabernacles and in rooms devoted to thin church periodicals and thick volumes of sermons'; but in those same colleges there are scholars as devoted to sound learning as any in this country. In the years covered by this story Dr. Du Bose, one of the most original of thinkers, was teaching theology to students for the ministry, and to this hour one of the finest Greek grammarians, Dr. A. T. Robertson, is teaching Greek to Southern Baptist students. To these names any student of theology could add many more without difficulty. The standard of scholarship demanded from candidates for the ministry is steadily rising. There is here, as there is everywhere in American church life, a state of tension.

To ignore the courage and hope of those who are resisting and overcoming abuses is to miss the clue to the right understanding of American life. The zeal for an educated ministry was one of the noblest qualities of the Pilgrims: 'One of the first things we longed for,' they said, 'and looked after was to advance learning and perpetuate it to posterity, dreading to leave an illiterate ministry to the churches when our present ministers shall lie in dust.' That high resolve has never been forgotten in the Christian churches of America; and justice must be done to the immense sacrifices made to ensure a training for the ministry.

The theological students, as Mr. Sinclair Lewis sees them, are a mean and contemptible group with an exception or two. One is a complete and cheerful atheist, who pours ridicule on the very idea of a Christian ministry, 'overflowing with knowledge of what God said to the Holy Ghost *in camera* at 9.16 last Wednesday.' Others are feebly and professionally pious. They talk of ways whereby they may make a hit with the congregation: 'of course praying, and all that, is all O.K., but you got to be practical.' They are entering the ministry partly to please their people, partly because they have a vanity to which the display of the pulpit appeals, and some because they like the comparative leisure of a pastorate in the country. One or two have nobler motives; but in dealing with these the author is uncomfortable. It was said of Southey, when he wrote his *Life of Wesley*, 'Sir, thou hast nothing to draw with, and the well is deep.' The picture of these students does not bring conviction. It is a dark section, usurping the place of the whole. Theological students everywhere are in danger of professionalism; they are tempted to debase the sacred coinage by frivolous talk; but they most certainly are not like the crowd of youngsters 'who panted as Elmer chronicled his meetings with a willing choir-singer, this summer past.'

The author selects for his second main theme the evangelistic troupe under the beautiful Sharon Falconer. It is in his mind to bring the light of judgment upon a peculiarly vile institution. Elmer, who has had a term of work as a salesman for the Pecquot Farm Implement Company, comes across Sharon and her company:

> The tent was enormous; it would seat three thousand people and another thousand could be packed in standing-room. . . . At the front of the tent was an extraordinary structure. . . . It was a pyramidal structure, of white wood with gilded edges, affording three platforms; one for the choir, one higher up for a row of seated local clergy; and at the top a small platform with a pulpit shaped like a shell and painted like a rainbow. Swarming over it all were lilies, roses and vines. 'Great snakes!' decided Elmer. 'Regular circus lay-out!'

There is a troupe of players with Sharon: a Press agent who prepares the way of the Lord; a pianist; a young 'Oxford mystic' who is as impossible a character as Elmer himself. The troupe, if it had transferred its activities to those of a wandering theatrical company, would have needed singularly little adjustment. They are cynical, and almost entirely devoid of any enthusiasm. Sharon herself might have been at home in some shrine of Astarte. 'I can't sin! I am above sin!' she cries. 'I am really and truly sanctified! Whatever I might choose to do, though it might be sin in one unsanctified, with me God will turn it to His glory.' The troupe provides a curious example of the association of a corybantic religious emotion with sexuality. Dr. Kirsopp Lake says that all ancient religions had to fight against cruelty, superstition and lust; Christianity won its victory over lust so completely that almost all traces of the conflict are lost. The danger, however, recurs. Sharon Falconer is not an impossible figure, though she would be counted a public scandal by the Christian churches which count for most in America. The study of religious psychology has sounded the death-knell of the baser kinds of evangelism. And Carl Sandberg, the poet of Chicago, in his own fashion has spoken the mind of decent Americans towards a 'contemporary bunkshooter.' He asks,

> Where do you get that stuff?
> What do you know about Jesus?

And he proceeds in his own dialect to draw a distinction between the real Jesus and this 'slimy bunkshooter.' 'When are you going to quit making the carpenters build emergency hospitals for women and girls driven crazy with wrecked nerves from your gibberish about Jesus—— I put it to you again: Where do you get that stuff; what do you know about Jesus?'

At the same time it would be untrue to class all American evangelists with Sharon. No one who knows them would think of Dr. Biederwolf or Dr. Chapman or Dr. Torrey as anything but sincere and earnest preachers; and it must be remembered that Moody, the sanest of all modern evangelists, came to this country from America. In that country Northfield, with its institutions, is an enduring witness to Moody, whose religious passion went along with a rich humanity. For his influence upon Great Britain it is enough to refer to the *Life of Henry Drummond*, by Sir George Adam Smith. The churches which have known such a true and noble evangelist will not tolerate for long such adventurers as Sharon Falconer.

Elmer finds at last full scope for his gifts in the Methodist Episcopal Church. Bishop Toomis, a bland and unctuous person, chirped of his travels, in the course of which he once, so the

steward said, met a lord; he offered Elmer a welcome into his church without much inquiry into his past. Soon Elmer is a preacher at Banjo Crossing; and we are introduced to all the tricks of a popular preacher. He rises in the scale rapidly. He announces startling subjects: 'Would Jesus play poker?' and 'Would you like your mother to go bathing without stockings?' are two of them; his *Lively Sunday Evenings* proves most attractive, and no art of the popular salesman is neglected by him. His notices encourage the crowd to

> Follow the crowd to the beautiful times
> At the beautiful church with the beautiful chimes.

He enters into various political campaigns, always with an eye for their value to him as a preacher. His motto might always be 'heroism without risk.'

There is nothing in his methods to which parallels cannot be found in the newspaper announcements in an American city. It is definitely claimed by those who use this method that salesmanship should be adapted to the service of the Church. The phrase 'to sell the Gospel' is used with no sense of incongruity. American business has learned the technique of salesmanship; it is a phase of applied psychology. Why should it not be applied to the service of the Gospel? The palate of the hearers must be considered. They are accustomed to the methods of the Press and the hoardings; they are in the same mental habit in church as in the cinema or when they are reading the Sunday papers. So the argument runs that the preacher should fall into line with the other suitors for the ear of the people.

It is here that the most serious struggle before the Church comes in sight. The alert and quick-witted church-people in America find themselves in a world where many changes are taking place. They see 'big business' prevailing. They know that 'paternalism' is the accepted ideal in industrial organisations. They are in the midst of a people enjoying an unparalleled prosperity. They respond to all the thrill and excitement of such a time. And they are tempted to adopt in the service of the Church the methods and values of the present American scene. The distinctive witness of the Church may thereby be lost. If the judgment of Mr. Sinclair Lewis is to be trusted, the battle is already lost, and the Church has gone over to the world. 'Big business' has the Church in the hollow of its hands. The Church stands cap in hand before the magnates of the market-place. It must have dollars, and those who provide the dollars claim the right to set the tune!

The battle has not been lost, but it has not yet been won. There have been sinister demonstrations of the claim of 'big business' to dictate to the Church. When the Inter-Church

movement ventured to deal with the conditions of labour in Pittsburg its days were numbered. In the autumn of 1926 the 'big business' leaders of Detroit vetoed the proposal that labour leaders known as Christian men should preach in the pulpits of that city. They threatened to withdraw their support from the Y.M.C.A., which had in hand the raising of a great fund. Yet even in that hour there were voices raised in protest by leading ministers in Detroit, and the Federal Council of the Churches supported their protest. The defect in the picture which Mr. Sinclair Lewis draws lies in the fact that he sees the evil but he does not see the powers at work against it, or if he sees them he believes they are foredoomed to failure.

The Methodist Episcopal Church into which Elmer comes has a great variety of ministers with which to face its tasks and problems. Many types are described: the ritualist, the literary person, the social reformer who knows where to stop within the lines of safety, the mildly heretical, the snob—all are sketched. But there is little attempt to do justice to the men who are the bulwarks of that great Church, men who in the midst of the distractions of a vast institution keep their passion for the souls of men.

'The Methodist ministers of Zenith,' Mr. Sinclair Lewis points out, 'looked like a group of prosperous and active business men. Only two of them ever wore clerical waistcoats. . . . A few resembled farmers, a few stonemasons, but most of them looked like retail shops.' One of them was almost as bad as an Episcopalian (Episcopalians in this book are chiefly treated as devotees of ritual and unsound on Prohibition); another had a wonderful institutional church with classes in French, and sex hygiene, and book-keeping and other subjects. Its pastor had come out hard for social labour. Another was fat, pompous, full of heavy rumbles of piety—a stage parson. So the long and rather dreary satire proceeds; and the reader begins to wonder whether the failure to see other qualities may not lie in the eye of the writer; he has gone prepared to see these things, and he shuts all other objects out of the range of his vision. The novelist who has been hailed as a master of satire must live up to his part. But the satirist in his selection may be dishonest no less than the preacher.

The tension between Fundamentalism and Liberal theology does not escape the attention of Mr. Sinclair Lewis. It is no injustice to him to say that he considers the Liberal clergy doomed to failure. They are attempting to square the Christian religion with modern science, and they will discover sooner or later that it cannot be done. The fundamentalist, though he is holding to impossible dogmas, is right in believing that modernism leads to

atheism. The Liberals present a forlorn appearance: 'a placidly atheistic Unitarian minister, a Presbyterian who was orthodox on Sunday and revolutionary on Monday, a wavering Congregationalist, and an Anglo-Catholic Episcopalian who was enthusiastic about the beauties of the ritual and the Mithraic origin of the same.' This is one group of Liberals, and there are others in the picture. They are not bad fellows, but they are consciously or unconsciously drifting towards atheism.

Nothing could be further from the facts of the case than to represent the Liberal Evangelicals of America as trembling on the verge of a lapse into infidelity. It would be as reasonable to count the Bishop of Birmingham, or Dr. T. R. Glover, or the Dean of St. Paul's as in peril of atheism, or even secretly atheists already.

The modernist Frank Shallard ventures into a den of fundamentalists during the Dayton agitation, and is left mutilated and half-dead. The existence of an unofficial inquisition in the States cannot be questioned. But the Klu Klux Klan and other agencies of terrorism are waning powers. In reading of their achievements it must never be forgotten that the United States is a continent with many States enjoying a virtual autonomy; it is a continent with vast stretches of sparsely-occupied land, and there is a great difficulty in enforcing law. None the less, it is one of the tasks before the lovers of liberty in Church and State to suppress all inquisitions which fetter liberty of speech and pen. The battle is not yet won. Last summer the Rev. Frank Norris shot a man in his study, and preached afterwards upon the words 'There is therefore now no condemnation to them that are in Christ Jesus.' He has since been acquitted!

Little is said of the great Catholic Church of America, with its tradition of democracy. The modernist, in his seeking for a place of refuge, does indeed inquire from the priest if he could join his Church on the understanding that he does not believe its dogmas. He receives the answer he might have expected, 'Go home and pray for simplicity.' He arrives at the conclusion, 'The Roman Catholic Church is superior to the militant Protestant Church. It does not compel you to give up your sense of beauty, your sense of humour, or your pleasant vices. It merely requires you to give up your honesty, your reason, your heart and soul'—a judgment which may or may not be the author's, but is manifestly unjust!

It is not, however, with the Roman Church or with Christian Science or with other great communions that the author deals chiefly, but with the Baptists and the Methodists. The Methodists stand forth as the most remarkable example of the daring and swiftness and mobility of the Church in America. They are

the most sensitive to the moods of the hour. They are knit together in an organisation at once supple and rigid. They have great memories. Asbury, 'the man on horseback,' was their apostle, and with the same spirit of fearless advance their fathers set out with the trails across the Appalachians and every new movement into the West. They once had a song, not of any poetic merit, but with a fine burden of courage:

A new church greets the morning flame
Another evening's ray.

'All hail the power of Jesus' name'
We're building two a day.

That was the confident spirit of their fathers in the nineteenth century, and something of the same mobility is shown to-day in their facing of social and international problems.

American churchmen do not need the novelist to tell them where their struggle will lie in the days ahead. They have to vindicate the prophetic element over against the institutional; they have to learn how to keep the Christian values in a modern world in which prosperity is accounted the measure of Divine favour; they have to hold fast their passion for souls during an age of transition in thought; they have to withstand the tyranny of 'big business'; they have to be in the world, and not of the world. They must be ready for an age of tension. Yet they have great resources—freshness, vitality, courage, the willingness to destroy, swiftness and mobility. With these they have to fight the tyranny of the institution, the perils of a purely secular outlook, and the allurements of an age of mechanical triumphs.

To the author of *Elmer Gantry* the Church presents the appearance of a ragged army in retreat. So it will seem to all who accept his selection of facts. Those who have another range of facts in their vision will not deny that only through agony and conflict will the Church in America win its way to its true place in the coming age. But they do not doubt that it will win the battle within its own borders, and be set free to become the spiritual guide of the nation.

EDWARD SHILLITO.

# THE GROWTH OF THE READING PUBLIC
## (1780—1800)

NEARLY every age is convinced that it reads more books than its predecessor, but those who had that conviction in the last quarter of the eighteenth century were certainly right. Reading, at least in the common estimation of the English, is something of a luxury, and as the middle class standard of living became in the course of the eighteenth century if not more luxurious yet less bare, the habit of reading grew very remarkably. When Johnson was a boy the shopkeeper had a fire in his parlour only on Sunday, but when Johnson was three score years and ten the bare simplicity of life in the lower middle class was giving way to greater comfort. With more fires, in fact, they had more books to read by their firesides, and it seemed to Johnson that England had become 'a nation of readers.' For the growth of reading was just one aspect of the wide change which was making England substantially the England, if not of to-day, of the yesterday whose sun set in 1914. The isolation to which bad roads and poor coaches had condemned the provinces was being broken down. Men travelled more from town to town, and London fashions reached the country cousins. London had set up its first circulating library in 1740, thanks to the inspiration of a dissenting minister, the Rev. Samuel Fancourt, and by 1761 the *Annual Register* was commenting that 'the reading female hires her novel from some Country Circulating library, which consists of about a hundred volumes.' And the same observer was sorry to note that 'the several great cities, and we might add many poor country towns, seem to be inspired with an ambition of becoming little Londons of the part of the Kingdom wherein they are situated.'

Intellectually the ordinary man began to wake up. Even of so early a year as 1748 Johnson wrote as 'a time when so many schemes of education have been projected . . . so many schools opened for general knowledge, and so many lectures in particular sciences attended.' We are wont to think too much of the eighteenth century as educationally a stagnant century. The public schools, it must be admitted, as well as being bound by old

traditions, were poor enough places of education, with their harsh discipline, rough living, and low morals. In their occasional mutinies they were like bear-gardens. Adam Smith denounced the whole system as one in which the security of endowments had thoroughly corrupted all diligence. Nor was his account any better of the universities, 'the homes of exploded philosophies.' In his opinion the spirit of Oxford and Cambridge was the spirit of monopolists, 'narrow, lazy and oppressive.' He thought ridiculous the custom that had grown up of sending young men, not to the university, but to tour the Continent, and held that 'nothing but the discredit into which the universities [were] allowing themselves to fall, could ever have brought into repute so very absurd a practice as that of travelling at this early period of life.' How heavy the dead hand of antiquity still lay on the universities the ashes of the poet Crabbe's English *Essay on Botany* might testify. Though he had made so much progress with it as to approach Dodsley about its being published, he put it aside and then into his periodical bonfire because of the remonstrances of the vice-master of Trinity College, Cambridge, 'who, though little tinged with academical peculiarities, could not stomach the notion of degrading such a science by treating it in a modern language.' And that was as late as the nineties.

But the ordinary man was not of the class whose education depended upon the public schools and universities, and it was the ordinary middle-class man who made England the 'nation of readers' Johnson called it. And Johnson had noted another change—the rise of a new kind of gentleman, the English merchant. This latter, if not a reader himself (and probably, like Isaac Disraeli's father, 'the loss of one of his argosies, uninsured, could not have filled him with more blank dismay' than to have found a son of his a writer), had a considerable influence on the education which taught people to read. He was hardly to be satisfied with the lads whom the endowed schools offered for the desks in his office. His demand was for more modern and practical education, and it called into existence the English or commercial schools which became more and more popular as the nineteenth century approached, and which are enough in themselves to disprove the accusation of an all-prevailing stagnancy in education before Butler, of Shrewsbury, in 1798 began to break the slumbers of the higher monopoly. Their enemies might deride them as 'schools for the shop, the warehouse, the counting-house, and the manufactory,' but they gave the middle class an education which it wanted, and which it had been denied. The educational monopolists were no more willing to do their duty by the growing public than the publishing monopolists had been, and the successful attack on the latter by Donaldson, with his

cheap reprints of English classics, had its necessary counterpart in the successful rivalry against the former of these academies, as the commercial schools called themselves. Donaldson gave the growing middle class cheap books to read, and the academies taught them how to read. So we see a boy like Kirke White, a butcher's son, going in the nineties to an academy in Nottingham and writing to his elder brother: 'I also now read the *British Classics*, the common edition of which I now take in; it comes every fortnight . . . it is Cooke's edition.'

In fact, education began to improve at the bottom before it began to improve at the top. In 1780 Robert Raikes, of Gloucester, proprietor of the *Gloucester Journal*, was moved by seeing the ignorance, immorality and wretchedness of the children employed in the factories. He engaged four women teachers, and, with a supply of Bibles and Testaments, set up in that year the first of the modern Sunday schools to teach children to read their Bibles, and to learn and understand their catechism. A report of his efforts in his *Journal* of November 3, 1783, was copied into the London papers, and a notice soon after in the *Gentleman's Magazine* gave the scheme still greater attention, until on September 7, 1785, Raikes, joined with other philanthropists, set on foot the Society for Promoting Sunday Schools. Their success was immediate, and in the next two years there were 147 new schools set up, and the system became general. Lackington, the first big popular second-hand bookseller, asserted in his *Memoirs* of 1803: 'The Sunday schools are spreading very fast in most parts of England, which will accelerate the diffusion of knowledge among the lower classes of the community, and in a very few years exceedingly increase the sale of books.' Indeed, they were probably one of the strong forces that began to lead the poorer classes to believe in and seek the advantages of reading and writing. At any rate, seek it they did, for we find Sarah Trimmer saying in 1801: 'Every town and most villages have their schoolmasters who keep evening schools for those who cannot attend in the day-time, and the desire for these acquirements is so general among the poor that parents will for the most part contrive that their children shall attend them.'

That desire of the poor to read was quite a sudden growth, and so were the opportunities which in 1800 they had of obtaining books. Holcroft had been a poor boy in the fifties leading a wandering life, now hawker and cobbler with his father, now stable-boy at Newmarket, and now selling coal on the midland roads, and between those days and his latter years round 1800 he saw a great difference. 'Books were not then,' say his *Memoirs*, 'as they fortunately are now, great or small, on this subject or on that, to be found in almost every house; a book, except the

prayers or of daily religious use, was scarcely to be seen but among the opulent or in the possession of the studious.' However, 'even the walls of cottages and little alehouses would do something; for many of them had old English ballads such as the "Death and the Lady" and "Margaret's Ghost," with lamentable tragedies, or "King Charles's golden rules," occasionally pasted on them. These were at that time the learning, and often, no doubt, the delight of the vulgar.' From one of these as a boy he learnt by heart the ballad of Chevy Chase, and his father rewarded him with a halfpenny for his industry. And in addition he had the cheap little chapbooks for children, such as *The Seven Champions of Christendom* and *The History of Parismus and Parismenes*. Then he came to know *The Pilgrim's Progress*, and another cobbler lent him the *Spectator* and *Gulliver's Travels*, while he says that at one time 'the *Whole Duty of Man* was my favourite study, and still more Horneck's *Crucified Jesus*.' So from the few books he could get he learnt to become a writer himself.

The life of Lackington, the bookseller, shows still more clearly the development of the desire and opportunities of reading among the poor. A year younger than Holcroft, he was born in 1746. When he was a child the old dames of Wellington praised his repetition of the New Testament, but print was not common in Somerset in 1760, and the boy did not see much of it at a time except for the bundles of almanacs which, around Christmas, he used to cry for sale along with the pies and puddings of his master the baker. But when Methodism made him its enthusiast he found in the tracts, which were plentiful, stimulating reading, and he became a devoted reader as he went cobbling round the west, in Wellington and Taunton, in Bridgwater and Exeter, and particularly in Bristol. At last, when he was cobbling in London in 1774, he was told of a vacant shop, and he immediately jumped at the idea of becoming a bookseller. He had lately 'observed a great increase in a certain old book-shop,' and he loved books, and so he took his chance. Obscure though his shop was, and trash though, on his own admission, he sold, he prospered. People were eager for something to read, and Lackington's business advanced so rapidly that in 1779 he was able to issue his first catalogue of 12,000 second-hand books.

Crabbe as the son of the saltmaster of Aldborough had a better chance of education than Holcroft the son of the versatile huckster or Lackington the son of the drunken cobbler, but, apart from his schools at Bungay and Stowmarket, where he gained his first acquaintance with the classics, the literary education he gained for himself was of much the same quality as theirs. 'My father,' says his son, 'was, indeed, in a great measure self-educated. . . . He was a great friend of the old dames of the place.

. . . He admired the rude prints on their walls, rummaged their shelves for books or ballads, and read aloud to those whose eyes had failed them, by the winter evening's fireside.' And once he had been taught by an old dame to read, ' he was unwearied in his reading ; and he devoured without restraint whatever came into his hands, but especially works of fiction—those little stories and ballads about ghosts, witches and fairies which were then almost exclusively the literature of youth, and which, whatever else might be thought of them, served, no doubt, to strike out the first sparks of imagination in the minds of many a youthful poet.' They were the same tales as, in his *Parish Register* of 1807, the poet still numbers in the chosen stock of cottage reading—the tales of the Wandering Jew, Tom Thumb, Hickathrift the Strong, and Jack the Giant-Killer, many doubtless from the shop of Mr. Newbery, of St. Paul's Churchyard, the great eighteenth century publisher of children's books.

While poor boys like Holcroft, Lackington, and Crabbe could thus find books enough to educate them, children who were better off had books in plenty. Egerton Brydges said that about 1766, when he was a child learning to read, his ' mother had a trunk full of romances and fairy tales.' Indeed, the second half of the eighteenth century became increasingly rich in literature for children. Newbery's *Little Goody Two Shoes* and its companions were very popular, and then in the eighties came what Leigh Hunt, who was a boy in the early nineties, called ' the fresh country breeze of Mr. Day's *Sandford and Merton*—a production,' he said in 1850, ' that I well remember, and shall ever be grateful to.' Day's book gradually replaced those which, in Hunt's view, ' had been in a bad way with sordid and merely plodding morals,' and in which ' every good boy was to ride in his coach and be a lord mayor, and every bad boy was to be hung or eaten by lions.' But though Hunt did not like those ' gilt gingerbread ' books, no doubt they were the joy of many a child, who was only still the luckier when Thomas Day made a change.

And the children of the end of the century were lucky because in their day there was a change in school-books too. ' It is worth remarking,' wrote Lackington in 1803, ' that the introducing histories, romances, stories, poems, etc., into schools, has been a very great means of diffusing a taste for reading among all ranks of people. While in schools the children only read the Bible (which was the case in many schools a few years ago), children did not then make so early a progress in reading as they have since they have been pleased and entertained, as well as instructed ; and this relish for books, in many, will last as long as life.'

In a study such as this it is especially desirable to heed this

reminder of Lackington's that 'the child is father of the man.' We realise the inevitable growth of the reading public all the better the more we consider what it was that children read, and no example is better of a child of a well-to-do family of the seventies than Walter Scott. What the poorer boy had, he had too. He used to learn the ballads and copy them out, and before he was ten years old he had made a collection of several little volumes. At the same early age he was making a collection of Penny Chap-books, little humorous stories in prose, which for years remained popular with the lower classes in Scotland. And, in addition, he would spend hours as a young boy not yet old enough for the high school in reading aloud to his mother Pope's translation of Homer. Then 'in the intervals of my school hours,' he says, 'I . . . always perused with avidity such books of history or poetry or voyages and travels as chance presented to me—not forgetting the usual or rather ten times the usual, quantity of fairy tales, Eastern stories, romances, etc.' And he found odd volumes of Shakespeare in his mother's dressing-room, and would sit at night in his shirt reading them by the light of the fire. The learned Dr. Blacklock lent him Ossian and Spenser. In the circulating library he 'waded into the stream like a blind man into a ford.' When he was thirteen he found the *Reliques* of Percy, and was so enthralled by them that, as he sat in the garden, 'the summer day sped onward so fast, that notwithstanding the sharp appetite of thirteen, [he] forgot the hour of dinner, was sought for with anxiety, and was still found entranced in [his] intellectual banquet.' And about the same age he became acquainted with the works of the great eighteenth century novelists, and continued to devour anything and everything that was adventurous and romantic.

Those must suffice as particular examples of the rising generation of readers. It is time to examine the general conditions which between 1780 and 1800 were stimulating and supplying the facilities for this growth in the reading public. The forces which made for increased intellectual activity in all classes were improved means of communication, more widespread education, the Industrial Revolution, and the Revolution in France. The food which the intellectual awakening demanded was supplied by cheap editions of the English classics, by more and cheaper second-hand books, by remainders at greatly reduced prices, and by cheap series of tracts and pamphlets, and of popular number books.

At the improved means of communication we have already glanced. Turnpike trusts had been doing good but haphazard work to make better roads since the fifties. Then in 1793 Pitt set up the Board of Agriculture, largely as a result of the agita-

tion of Arthur Young, and it brought organisation into the process of linking up the country, calling to its aid the great road engineers Metcalfe, and Telford and Macadam. But already by 1784 the roads had been sufficiently improved for Palmer to inaugurate with success his scheme of mail-coaches. In that year the first mail-coach ran from London to Bristol, and the progress was such that in 1792 six mail-coaches left the General Post Office in London each day, and to see them start was one of the sights of London. In a few years there was a service of stage-coaches between all the chief towns as regular as that of the railways of to-day. Their effect on the mind of the country could hardly be other than considerable. It was an education to see a coach on its way with mails to Ireland along the new road to Holyhead which Telford had constructed. A man's horizon was broadened and he began to see the country more as a whole. The passage of news was speedier. Ideas circulated more freely, and national opinion became a more substantial power, as the village and the town were seen, not so much as units in themselves, but as units of a larger unity.

This improvement in communications served as a handmaid to the Industrial Revolution. It encouraged the drift to the towns. The new machinery ruined the old cottage industry with its handloom, and, together with the encroachment of 'improving' landlords, drove the small landowners into the towns to own factories and their servants to work in them. And from about 1780 it seemed that the only thing in the world that mattered was industrial expansion. The towns sucked in an ever-growing population, and they made changed men of their victims. The very vileness of the life in the herded towns and the very misery and discontent became creative forces. They drove men into thinking about the nature of society and the rights of man, and they compelled men to turn from the soul-deadening drudgery of every day to the chapels and the debating clubs, where a man might again feel himself a man who mattered to his Maker or to his fellows. For the harsh discipline of the factories and the ugly wretchedness of the houses that were often no better than hovels, led men naturally to a sphere where they might find some self-expression, and to dreams and theories which might feed hope in their starved spirits. When many men are gathered together, and particularly when they are banded together beneath oppression, the leaven of ideas is a quick worker, and when the French Revolution let loose for the masses the ideas which had been gaining ground among philosophers throughout the century, the masses quickly took them up, and in the nineties and onwards the manufacturing towns of northern England quickened with thought. They were the homes of thousands of citizens and

patriots who read the wild pamphlets of Thomas Paine. Those gloomy tenements were the forcing houses of intellectual discontent, and from them shot up a new class of uneducated readers. Their minds were grappling with unaccustomed ideas before ever they had been trained to think. But in the revolutionary clubs they tried to thrash out their ideas of a new order of society and to scheme for its fulfilment, and that was a process of self-education.

Thus the Industrial Revolution and the French Revolution worked together to make men thinkers and readers. The early years of the latter were years of vision to masses of the people of England. The people began to grow conscious of themselves as the People, and the idea of democracy was sown as an ineradicable seed. A boy like the learned boy in Crabbe's tale, who went straight from the country to work in a town, was intoxicated by the froth of ideas and began to deride the Bible. Even those who went to their chapels often went to their revolutionary club as well, and all read voraciously. Of 1794 Gillies[1] wrote that 'at that date the works of Voltaire and Tom Paine were reckoned class-books for infidel argumentators.' In the early nineties *The Rights of Man* and *The Age of Reason* were for a while selling in thousands. There came 'a swarm of free-thinking and democratical pamphlets.' In responsible quarters a reaction set in and there was an outburst of fierce partisan prosecution, and even education itself was suspect. But no man could put back the clock and stop the thinking and reading which had become so general. The nation of readers was permanently a bigger nation, and Mathias grudgingly admitted in 1797, 'We no longer live in an age of ignorance. . . . Our peasantry now read *The Rights of Man* on mountains, and moors, and by the wayside.'

Thanks to Donaldson's final demolition in 1774 of the claim to perpetual copyright, there was plenty of sound reading matter, too, available in these years for the new public. There was Cooke's *British Poets*, of which Leigh Hunt wrote: 'How I loved those little sixpenny numbers containing whole poets! . . . I bought them over and over again; and used to get up select sets that disappeared like buttered crumpets; for I could resist neither giving them away, nor possessing them.' There was Harrison's *Novelists' Magazine*, of which it is said that 12,000 copies of each number were sold weekly. There were cheap collections of all kinds, of which a 'number' appeared each week, and they were undoubtedly one of the greatest educational forces of the last decade of the century. Even the Bible was, in Crabbe's phrase, 'number'd through the town,' 'with cuts and comments,' to the strengthening of the Wesleyan movement. And popular his-

[1] See R. P. Gillies, *Memoirs of a Literary Veteran*, 1851.

tories and encyclopædias appeared in the same way. For the general effect, as early as 1782 there is the testimony of a Prussian visitor to England, who in that year noted that 'the English national authors are in all hands. My landlady, who is a taylor's widow, reads her Milton, and tells me that her late husband first fell in love with her because she read Milton with such proper emphasis.'

Lackington, too, was a great benefactor to the new reading public. His sales of second-hand books by 1800 deserve to be called enormous. In fact by 1803 he claimed to sell more than 100,000 annually, and he could afford in his memoirs to say, 'I could almost be vain enough to assert, that I have thereby been highly instrumental in diffusing that general desire for READING now so prevalent among the inferior orders of society.' Nor was the public's debt to him only for his very cheap and large stocks of second-hand books, but he was the first who dared to sell remainder copies of new books at a considerable reduction in defiance of the mandate of the publishing trade.

Then there were the tracts which suddenly became numerous. The Jacobins were prolific. 'It is not enough to say,' wrote Mathias in 1797, 'a book is bulky and voluminous, and therefore can have no effect on the mass of the people, because that opinion is not true. Such a book can not only be abridged and dispersed abroad, but a man like Thomas Paine . . . may blend the substance of the opinions with his own, and in a short popular tract make them familiar and intelligible to every apprehension.' So the Anti-Jacobins wrote tracts too, and when the Cheap Repository Tracts were published in 1792, 2,000,000 were sold in the first year. Then in 1799 the Religious Tract Society was founded to supply the Sunday schools with literature.

From all of this, which is but a sketch, the sudden and considerable growth of the reading public in the last twenty years of the eighteenth century is clear, and for its extent we may quote the words of Lackington, who by his occupation had every chance to form a sound judgment. 'I cannot help observing,' he wrote in 1803, 'that the sale of books in general has increased prodigiously within the last twenty years. According to the best estimate I have been able to make, I suppose that more than four times the number of books are sold now than were sold twenty years since. The poorer sort of farmers, and even the poor country people in general, who before that period spent their winter evenings in relating stories of witches, ghosts, hobgoblins, etc., now shorten the winter nights by hearing their sons and daughters read tales, romances, etc., and on entering their houses, you may see *Tom Jones*, *Roderick Random*, and other entertaining books, stuck up in their bacon-racks, etc. If John goes to town with a

load of hay, he is charged to be sure not to forget to bring home *Peregrine Pickle's Adventures;* and when Dolly is sent to market to sell her eggs, she is commissioned to purchase *The History of Pamela Andrews.* In short all ranks and degrees now READ. But the most rapid increase of the sale of books has been since the termination of the late war with America.' And if there were space we should examine the change which Lackington recorded when he said, 'by far the greatest part of ladies have now a taste for books . . . and there are some thousands of ladies, who frequent my shop, and know as well what books to choose, and are as well acquainted with works of taste and genius, as any gentleman in the Kingdom.'

Finally, as an opinion on the passage of the habit of reading to the middle class, let us quote the words of the reviewer of Crabbe's *Tales* in the *Edinburgh Review* of 1812. 'It was wise,' he says, 'and meritorious in Mr. Crabbe to occupy himself with such [tales]. In this country there are probably not less than two hundred thousand persons who read for amusement and instruction among the middling classes of society. In the higher classes there are not so many as twenty thousand.'

A. S. COLLINS.

# THE CONVOY

## I

'IF you come back here at 4 o'clock I will introduce you to a captain.' It was the manager of the shipping office who spoke as he glanced at a scrap of paper I had handed to him on which a few words had been scrawled by the D.N.T.O. at Port Said.

Four times that week I had interviewed the D.N.T.O.—in fact, it was but half an hour since I left his office. No, he had no objection to my sailing, if I could get a berth, was his final answer to all my entreaties to secure me a passage to London by the first convoy that sailed. Would he be so good as to put that on paper? I requested. Certainly he would, and it was the old signal form on which he wrote, that I had presented to the manager.

Three weeks' experience of interviewing managers and senior officials had taught me tc ask no questions. Without a word except *'Thank you,' I left the office.*

It was 3 p.m.: an hour to wait. Already speculation as to coming events filled my mind as I hurried back to the hotel to pack my bags. It was in the late summer of 1918, and as difficult to find a steamer and book a passage at Port Said as it was to embark in the wrong boat in the Port of London in pre-war days. The idea of an introduction to some unknown captain as the first step in obtaining a passage was in itself enough to set the mind speculating on adventure.

Indeed, the whole affair of a journey overseas was now a gigantic mystery in its truest sense—not even a hint at the name of the vessel, her tonnage, her speed, or whence she came or whither she went, or even the day she sailed on, far less the hour. 'Confidential information' at shipping agents' offices would result in nothing more definite than the possibility of a boat next week, and a discussion on the constant rumours of the big boats that had been 'put down' within a few hours of the Port. True it was, the average shipping clerk knew no more of the arrival and departure of the ships of his own line than the man in the street; but true it was, the scores of torpedoed sailors who besieged the British Consulate day after day for passages to England impressed

the intending traveller with the solid facts on which 'unpleasant rumours' were based.

The days of express trains, special quays, reserved berths, and a few days' journey to London seemed gone for ever. It was one thing to get a passport, but quite another to get a passage, and unexpected regulations baulked one's endeavours at every turn. Yet never was there to be seen such a mass of shipping at Port Said, or such an extraordinary spectacle as the great camouflaged steamers presented to the student of ships and their ways. To watch them file out of the Canal, each ship painted in different colours in different patterns, apparently devoid of all system or purpose, and to think they were so decorated as to be inconspicuous to the eye, seemed the height of absurdity.

The originator of the camouflaged convoy might well be considered a lunatic from a close inspection of his work, but a genius of the highest order when his art was viewed from the horizon.

It is doubtful if any single invention during the Great War brought about so complete a transformation from the apparently unchangeable as the conspicuousness of big ships on the high seas, as the combination of art, science, and organisation, that was to be seen in the war convoy in full sailing trim. For many months ships had dodged from point to point along the coast of the Mediterranean, but so many good vessels failed to reach their destination that eventually none ventured to sea except in convoy, and even then they did not escape the attention of the ever-watchful U boats. Zig-zag as they might, there was little choice of route; and Fritz, who, under water, never showed lack of skill in handling his craft and sinking merchant ships, had little difficulty in intercepting convoys to and from Port Said. Indeed, like a cat watching a corner mouse hole, he could hardly find a more advantageous position in which to lie in wait for his prey.

As the war progressed passenger ships became few and far between, and passenger accommodation, never very plentiful on a 'freighter,' was now reduced to an occasional berth when not required for the 'service.' Courageous travellers would arrive at Port Said, spend weeks at a hotel, become dejected with their futile efforts to get a berth, and then suddenly disappear without leaving the faintest clue behind them as to how they had embarked or in what ship they had sailed.

Never shall I forget my surprise and astonishment at the sudden disappearance of a fellow-traveller. He occupied the room next to mine. For ten days we had talked, walked and dined together, argued and discussed all possible and impossible methods of how others had succeeded where we had failed, when,

without a hint, one morning his seat at breakfast was empty and I was left wondering if my turn would ever come.

The clock in the entrance-hall of the shipping office struck four as I announced myself, and was politely asked to take a seat. From where I sat I could see the door of the manager's office. Occasionally it would open and close as some clerk entered or left with letters and papers in his hand. The minutes passed. Was the captain there already, I wondered, and the manager urging him to take me? What would he be like? I mused for the hundredth time—perhaps a thin, wiry man with an acid temper, or a jovial, robust old despot full of good nature and humorous repartee. I tried to think of all the captains of all the ships I had sailed in in days gone by, from 'the old man' of the clipper *Torrens*, in which I first sailed to Australia in 1896 in seventy-two days, to the unapproachable autocrat on the bridge of the *Campania* crossing the Atlantic at twenty-one knots. His unknown personality obsessed me. Each officer in uniform who entered the hall on some errand or other might be the man to my expectant mind. To which of those monster vessels in their barbaric splendour would he belong? I wondered; or possibly he would be a naval officer in command of a destroyer or a transport?

The minutes flew by; the office door swung to and fro less often, and at last the hall-porter made ready to close the outer doors as the clock struck five.

Once more the door of the manager's office opened. I was determined to see him, and found myself blocking his progress as he was about to leave. A glance round the room; no captain was there, and all my expectations vanished. Too late, I thought. With an apology on my lips the manager cut me short: He was sorry the captain had not come ashore after all, as expected, but he would send a man to my hotel if he required me. He spoke in a casual tone, which dashed my hopes to the ground, and there was nothing for it but to hide my disappointment as best I might and creep back to my room to curse my luck.

It was three weeks to a day since I had arrived by train from Cairo. Should I give up the idea of sailing? Impossible as long as a single ship was left in port. No convoy had left for a week, and I felt sure they would leave at dawn, as every mooring berth was occupied and wisps of steam and smoke and that air of preparedness hovered over every vessel.

As usual, I went down to dinner at 7 p.m. The last course had just been served, when a waiter touched me on the shoulder and beckoned me to follow him. Without a word I rose and threaded my way between the chattering throng of officers and nurses who dined in the coffee-room each night. We made our

way out into the porch, and he pointed to a young man standing in the shadow of the verandah. The stranger asked my name; I gave it, and in silence we started off down the street together. It was dark, the street lamps having been long ago forbidden on account of air raids by the Turks, but I knew the town by heart, and in a few minutes we arrived outside the shipping office I had left an hour or two ago. Not a gleam of light showed anywhere. Apparently the building was locked and deserted. My guide paused, took a latch-key from his pocket, unlocked the door and pushed it open. We entered; the hall was dark, but a gleam of light shone from the manager's door, which stood ajar. He was alone sitting at his desk in his shirt sleeves as I entered, but at once rose and shook me by the hand, saying, 'You can have a berth to London.' At that moment the telephone bell rang, and I had to curb my impatience for information while he answered the call, which no doubt seemed to me much longer than it really was.

At last he turned towards me and at once said, 'The fare is 29*l*.,' so I pulled out my cheque-book, made out a cheque at his desk for the amount to his company, and handed it to him. 'Could I have a ticket?' I ventured to ask. He regretted I could not. 'Could I have a receipt, then?' I could; and a clerk was called from the next room who made one out on a sheet of letter-paper.

The manager now shook hands with me again most cordially, hoped I would have a safe voyage, and a good passage, etc., and turned to attend to some other matters. For a moment I stared at him; then I found my tongue. 'What is my ship? When am I to go? How am I to get on board?' I asked in bewilderment. He looked at me curiously, and without a word rang a bell. A porter appeared with whom he had a few words' conversation in a low tone of which I could catch nothing.

Turning to me again, he gave me brief instructions to say nothing, but to be at a certain place with my baggage not far from the hotel at 8.30 p.m., and that the same porter would meet me. The porter, by the way, was a Maltese, one of those peculiar men, common enough in Eastern ports, who speak half a dozen different languages and know everything that a tourist wants to know about transport, hotels, and embarkation. I thanked the manager profusely, we again shook hands, and I hurried out into the darkness of the street, full of that pleasing sensation of intense satisfaction in having at last achieved my object after three weeks' heartbreaking disappointment.

At last I thought I was really off, and should soon be running up the gangway of one of those big ships lying within a few feet of the quay. Possibly I might have to take a boat, but as likely

as not a lighter between the ship and the quay would do away with the necessity.

Once more I gained the hotel, repacked my bags, sought out the manager, called for the bill and paid it. 'Suppose you are off?' said he casually. I nodded assent. But not a word of inquiry as to when, how, or by what ship I was going. No doubt he was aware I did not know myself.

Never did a traveller set out to board his ship so full of confidence that all the difficulties had been surmounted. Needless to say, I was ready at the appointed place at the appointed time. Presently a cab drew up beside the pavement. The same porter I had met in the manager's office alighted from the box seat beside the driver and seized my baggage without a word, and we drove off through the streets as fast as the darkness would permit with safety.

It was with some difficulty that I could follow the windings of the cab, but after a few minutes we entered the custom-house gates. The cab pulled up, I paid the driver, and the porter, still in silence, again seized my baggage and made his way towards the quay, I following at his heels. As we were passing out beneath the archway to the water front a native policeman stepped out of the shadow and stopped us. He led me back alone to the passport office, in which sat an Egyptian clerk at a counter with a single shaded candle in front of him. My passport was in order; he stamped it, wrote something thereon, folded it up, and, leaning across the counter as he handed it back to me, said in a low but distinct voice, 'War-ah-moor.' He said the words slowly, laying stress on each syllable. I repeated them after him, wondering what on earth they meant. Certainly they were not Arabic or French, or words that conveyed the slightest meaning to my mind. A pass-word, I thought, and repeated them to myself again and again.

After some little trouble I found my porter with the baggage sitting in a very small boat with a single Arab to scull. Evidently, I mused, there is not far to go, but as I stepped into the boat my foot slipped off the seat, and the tiny craft rocked violently as I came heavily down. For a moment apprehension seized me. It was intensely dark, a dense velvety blackness hung over the water, and the moon was not due to rise for an hour at least. From where I sat in the stern-sheets with the porter it was all I could do to make out the figure of the boatman, far less his features.

At the best of times a sultry summer night at Port Said is oppressive, and as we pushed out into the black waters of the Canal the apprehensive sensation would not be dispelled. Even the outline of the great ships that crowded the basin could not

be traced. At most, a topmast, a funnel, or a derrick-boom could be distinguished against the sky. Not a gleam, not a shadow fell upon the placid waters as the boatman pulled out into the fairway, the only lights being a few stars overhead. We had proceeded scarcely 200 yards, when all in a moment I became aware that a panting tug was bearing down upon us. Precisely how we escaped destruction I do not know. Our skiff suddenly spun round like a cockchafer and rocked violently in a heavy wash. Cold perspiration broke out from every pore, and the utter helplessness of our position in the darkness struck me in all its naked reality.

After some acrimonious bawling between the porter and the boatman in Arabic we headed up the Canal, keeping somewhat out of the fairway, so we had occasionally to dodge various small craft and lighters made fast to buoys and the cables of moored steamers. On we went past the Canal offices, their pale green domes just showing against the sky, past Navy House (once the landing-stage for tourists), past the slips and the transports and endless numbers of great ships wrapt in gloom, till we came to a group of vessels lying side by side, their sterns made fast to a quay wall by wire ropes, and their bows to their anchor cables which had been dropped in the fairway. They were great 'freighters,' so close together that only a narrow alley-way was left between their towering hulls.

We had now been rowing for half an hour, and I knew that these ships must be lying at the extreme end of the Canal basin, so they could not be seen from the town quay or promenade. Passing within a few feet of the stem of the first ship our boatman entered the narrow lane between two vessels. As I have said, the night was intensely dark, but in this narrow lane it was the darkness of a crypt or cellar when the light goes out: the sudden blindness of a mole.

There was no sense of direction, and the boatman commenced to claw his way along the iron plates of the ship's side; it was hot to suffocation—a damp, stagnant heat, redolent with unpleasant odours of blistering paint and festering garbage, as the day's fierce sunshine still radiated from the vessel's sides and there had been no breeze to cool them. Presently I became aware that the boatman was in touch with a lowered gangway just above our heads, and to this he held on with a boat-hook. No sound broke the stilllness of the night, no object could be distinguished, but one kept one's head instinctively craned upwards gazing at the sky-line of the steel wall that rose above us, to relieve, if nothing lese, that sense of helpless blindness which is inseparable from groping for the unknown in total darkness.

Was this my ship? I wondered—certainly they did not seem

to be expecting me. But it was war-time, and no precaution was neglected to ensure secrecy in shipping matters. Before I had time to think how I should be able to get on board, and without the slightest warning, the porter startled me by bawling at the top of his voice 'War-ah-moor.' I held my breath, wondering what would happen. But there was no response—not a sound, not a movement, could be detected. Again he bellowed 'War-r-ah-moor-r-r,' with all the power of his lungs, in a long-drawn-out moan that one would have thought must startle every ship for half a mile. To this day that weird cry in the dead of night haunts me.

We waited, intensely listening; still there was no response from the surrounding gloom. After a few minutes we groped our way back round the bows of the vessel into another lane, apparently as silent and deserted as the first, and, finding a gangway only a few feet above our heads, the porter again bawled 'War-ah-moor,' and again I wondered what on earth this mystic cry might mean.

As I craned my neck upwards to catch some response a man's head and shoulders appeared against the sky as he peered down over the bulwarks. A second later he disappeared, and I became aware, from the vibration of the gangway, that a man was descending. Before he was half-way down he lost his footing in the darkness, and, slipping and lurching from side to side, dropped heavily into our tiny craft, which almost capsized with the impact. As he picked himself up I cried 'War-ah-moor,' but he did not seem to understand me. He was in uniform with some brass letters on his shoulders, but it was much too dark for me to make out what they were. There was also a strong smell of spirits, and I felt some misgivings towards our visitor from the suddenness of his arrival. After some questions it was clear he wanted to go on shore, but to row back to the landing-stage, an hour distant, was not to be thought of, so the porter suggested we should put him on the nearest quay, as our visitor resolutely refused to return to the ship from which he had come.

It was certainly most undesirable to continue our search amongst the shipping in the dead of night with an unknown passenger. For all I knew, he might be a deserter or a spy on some illegitimate errand. The chance of meeting the Canal police or a naval patrol was by no means impossible, and explanations and arguments, in the circumstances, would, I knew, be useless. On the other hand, to put the man ashore at some unauthorised landing place, possibly under the nose of a military picket, might lead to unpleasant consequences and the termination of my attempt to board a vessel.

While thus meditating the boatman pushed his skiff towards

the quay, to which the vessels' sterns were made fast by wire hawsers, and in a few minutes we bumped against the masonry. In the shadow I could only just make out the coping above our heads, and I wondered how on earth our passenger would land. Here was a fresh dilemma. Obviously he had had more to drink than he could carry. To scale the dressed stone wall seemed out of the question. A difficult feat, even for an acrobat in daylight, with nothing but the uncertain footing offered by the unsteady gunnel of a tiny skiff already over-loaded.

A brief consultation took place. The boatman laid aside his oars, and, placing his feet on either gunnel in the bows, bent forward and seized the soldier by the legs. With a single dexterous heave he shot him over the coping as he stood erect. Like all Arabs, the boatman had bare feet. He was without doubt a man of great strength, but in the darkness I could not see precisely how he performed this extraordinary feat. Relieved of the weight, the boat sprang backwards from the wall, and I, who was in the stern sheets, instinctively faced about, only to be instantly thrown violently backwards in the bottom of the boat by a wire hawser catching me beneath the chin. I shouted, the others ducked their heads, and our frail craft crashed into the great iron rudder-post of the steamer. For a moment I thought every plank must have started and we should sink. The sickening scrunch of woodwork, the violent oscillation of the boat, and the thought of being left to struggle in the scum and garbage that floated in this backwater, sent a shudder through me, and for a moment I felt quite unnerved. However, with the exception of shipping a bucketful of water, the boat seemed none the worse, and after a few minutes' rest we cautiously pushed clear of the hawsers and once again commenced to thread our way between the sleeping vessels, the porter from time to time shouting 'Warah-moor,' without response, as we paused beneath some half-lowered gangway.

It was now nearly 10 p.m., and the moon was casting her pale rays on the upper works of the great ships, but the narrow lanes between their hulls were still in deep shadow, and the camouflage was indistinct. We might, indeed, have been lost in a menagerie of prehistoric monsters tethered in stalls in another world. Here was a giant pair of gaping jaws, with rows of saw-like teeth, ready to swallow us at a single gulp, or two-thirds of an enormous eye-ball rose from the water and leered at us, while behind us the long waving tentacles of a mammoth octopus disappeared into the black depths of the valley we had just left.

Though the sense of constant danger vanished with the increasing light, the situation was perplexing. I had no ticket—I did not even know the name of the vessel I was in search of; and it

had been obvious to me for some time that the porter did not know the position of the ship he was looking for. Again and again I wondered if we should have time to hail every ship in the Canal before dawn. To abandon the search or give up the attempt to board a vessel never entered my head, not even if I had to take the sculls myself from the perspiring Arab, who showed signs of fatigue.

As the moonlight strengthened, the fantastic patterns painted on the steamers which crowded the Canal created strange deceptions. Each time we emerged from between two vessels into the fairway the dim forms of countless great ships could be discerned in all directions, so close together that the shore line could not be traced. Funnels, bridges, superstructures, and fittings, apparently mutilated and disfigured by a giant axe that had shorn through the upper works and hulls in huge diagonal strokes. Angles and bands, cubes and segments, side by side, in every form and combination of black, white, green, blue, and yellow paint, merged sections of one ship into those of another, or stood out in such sharp contrast that it seemed as if whole portions of a ship had vanished. One third of a bridge would be indistinguishable; funnels gashed and distorted, counters bisected, stems doubled, and false water-lines defied all attempts to recognise the familiar outlines of a single common tramp.

How many ships we hailed that night I do not remember, but at last we found a gangway still lowered, possibly, I thought, for some officer who had not returned. Here was a chance I decided in a moment not to miss. I would board the ship and investigate for myself. If she was bound for London and sailed on the morrow, happen what may I would stick to her somehow. (Had I not a receipt for 29*l.* in my pocket for a passage to London?)

As we ran alongside the gangway I gripped the handrail, and in five seconds was standing on her iron deck. She was a big 'freighter,' 10,000 tons at least; that was all I could tell. The officers' quarters were in the centre, and I soon found myself in the narrow alley-way on to which the cabin doors opened. Still not a sound—not a gleam of light from the black-painted portholes. Was the ship deserted after all? Was she quarantined for plague, or laid up for repairs, or waiting for a crew, or for some strange reason lifeless? I tried one door—it was locked—then another, then a third, and pulled it open: a flood of light nearly blinded me, but, having traversed the seas under war regulations, I instantly entered and slammed the door behind me. A young officer in shirt and trousers was sitting on his bunk reading a magazine and looked up in astonishment. 'War-ah-moor,' I said, with all the inquiry I could put into the words. For a moment he looked puzzled, then replied, 'Yes,

sir.' 'Are you going to London?' I asked him eagerly. 'Don't know, sir.' 'Are you P. & O.?' I went on. 'No, sir.' 'Are you Anchor Line?' 'No, sir.' 'Are you British India?' I persisted. "No, sir.' 'Then what the devil are you?' I cried in desperation. 'War-ah-moor, sir,' he replied, and just the suspicion of a smile passed across his face.

'Look here,' I cried, 'I want to get to England, and I have paid for a passage to London; have you got a berth where I can sleep?' I gave him my name and a brief description of how I came to be on board. He made no reply, but switched off the light, opened the door, went out, and I followed him, groping my way over to the starboard side of the ship at his heels. He showed me a neat cabin with two bunks. 'Surgeon' was over the door in brass letters, and I observed at a glance that every fitting was new—a few months in use at most. I thanked him and hurried off to get my baggage. From the top of the gangway I could just discern the boat below. 'War-ah-moor,' I cried. 'War-ah-moor,' sang out the porter from below, and seizing my baggage, soon deposited it on the deck of the steamer.

Never did I pay a man so cheerfully for services rendered. I looked over the side as he departed, and could just see the boat pull away in the darkness. The moon was now flooding the upper deck of the big steamer with silver light; I glanced round the vessel on which I found myself, noted her battened hatches and stowed-away cargo derricks, and knew she was ready to sail.

I was tired; the perplexities and uncertainties of the last two hours had exhausted me, and I fell asleep in my bunk in the clothes in which I stood, in spite of the overpowering odours of the drugs that pervaded the cabin.

E. C. BOWDEN-SMITH.

*(To be continued.)*

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